DOCUMENT RESUME

ED 332 690 IR 015 038

AUTHOR Kabat, Ellen J.; Friedel, Jan

TITLE The Development, Pilot-Testing, and Dissemination of a Comprehensive Evaluation Model for Assessing the Effectiveness of a Two-Way Interactive Distance Learning System. Final Report.

INSTITUTION Eastern Iowa Community Coll. District, Davenport.
PUB DATE Aug 90
NOTE 86p.; Partial funding for this study was provided by the First in the Nation in Education Foundation.
PUB TYPE Reports - Research/Technical (143) -- Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS Community Colleges; *Computer Assisted Instruction; *Distance Education; Dropouts; *Educational Television; Electronic Classrooms; Formative Evaluation; Higher Education; Microcomputers; Postsecondary Education; Questionnaires; School Community Relationship; Summative Evaluation; Surveys; *Telecommunications; Two Year Colleges
IDENTIFIERS Interactive Television

ABSTRACT

Both formative and summative evaluations of the operation of the Eastern Iowa Community College District's (EICCD) Televised Interactive Education (TIE) System were conducted. The TIE system links three Iowa community colleges and local public and private universities via two-way microwave connections, allowing the production and transmittal of video and audio signals from the interactive television classroom to remote-site electronic classrooms. The report on these evaluations focuses on six main measures: system use, class enrollments, average grade per site, student evaluation of the system, evaluation of students who have dropped out of TIE classes, and instructor evaluation. The report also presents recommendations arising from the study that relate to the technical aspects of the system, staff development, and necessary support systems. Data are presented in both narrative and tabular formats. Evaluation forms and survey questionnaires are appended. (74 references) (DB)

**********
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
**********

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

IR

91-1

ED332690

IR015038

# FINAL REPORT ON THE DEVELOPMENT, PILOT-TESTING, AND DISSEMINATION OF A COMPREHENSIVE EVALUATION MODEL FOR ASSESSING THE EFFECTIVENESS OF A TWO-WAY INTERACTIVE DISTANCE LEARNING SYSTEM

FY90

Authors: Ellen J. Kabat
Dr. Jan Friedel

EASTERN IOWA COMMUNITY COLLEGE DISTRICT

DISTRICT OFFICE OF ACADEMIC AFFAIRS AND PLANNING

AUGUST 1990

© 1990 Eastern Iowa Community College District

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Jan Friedel

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

BEST COPY AVAILABLE

# FINAL REPORT ON
# THE DEVELOPMENT, PILOT-TESTING, AND DISSEMINATION OF A COMPREHENSIVE EVALUATION MODEL FOR ASSESSING THE EFFECTIVENESS OF A TWO-WAY INTERACTIVE DISTANCE LEARNING SYSTEM

FY90

Authors: Ellen J. Kabat
Dr. Jan Friedel

EASTERN IOWA COMMUNITY COLLEGE DISTRICT

DISTRICT OFFICE OF ACADEMIC AFFAIRS AND PLANNING

AUGUST 1990

Partial funding for this study was provided by a grant from the First in the Nation in Education (FINE) Foundation.

TABLE OF CONTENTS


I. Introduction..... 1

II. Literary Search..... 3

III. The Study..... 7

Purpose..... 7

System Use..... 8

Class Enrollments..... 11

Average Grade Per Site..... 15

Student Evaluation of the TIE System..... 18

Evaluation of Students Who Have Withdrawn..... 51

Instructor Evaluation..... 55

IV. Summary..... 66

V. Recommendations..... 68

VI. Bibliography..... 69

VII. Appendices:

Appendix A Student Midterm Evaluation Form..... 75

Appendix B Student Final Evaluation Form..... 77

Appendix C Evaluation of Students Who Have Withdrawn Form..... 79

Appendix D Instructor Evaluation Form..... 81

## CHAPTER I

### INTRODUCTION

It is the mission of the Eastern Iowa Community College District (EICCD) to "provide easily available educational programs and services which are responsive to personal and community needs." To this end, we believe that we must employ creative and flexible approaches to the delivery of these programs and services. The implementation of the District's Microwave Telecommunications System has greatly enhanced the realization of this belief.

The EICCD serves a geographic area of 2,466 square miles with the Mississippi River as its eastern boarder. (See Illustration 1.) It is a multi-college District, comprised of three comprehensive community-based colleges, each committed to the improvement and expansion of educational opportunities for the citizens of Eastern Iowa. The Televised Interactive Education (TIE) System has made possible the district-wide implementation of courses previously limited to a single campus.

Illustration 1

**Eastern Iowa Community College District**

The ongoing goal of the TIE system is to increase the diversity and accessibility of quality offerings. Through the implementation of various strategies, the EICCD can provide services to a broad range of students and assist them in obtaining their educational goals.

The TIE system, which has been in operation since the fall of 1986, links Scott Community College, Muscatine Community College and Clinton Community College. These sites are linked together by means of a two-way microwave connection. Each community college is able to produce and transmit a "live" video and audio signal from its interactive television classroom. This allows the instructor to both see and hear students at the distant sites. The distant site or "remote" students can actively interact with the instructor. The signal is transmitted through the air by point-to-point microwave equipment to the towns located in each community.

The TIE system has made it possible for the EICCD to offer sophomore level courses essential to the continued quality of our curriculum; it has also permitted us the opportunity to offer those historically low-enrollment courses to a larger student population, thereby increasing the likelihood of their viability. Both credit and noncredit instruction utilize the system.

Use of the microwave technology has also facilitated the more effective use of our time and personnel by serving as a vehicle by which council, committee, faculty and student counterpart meetings can be conducted. The system is also utilized by local private four-year colleges and a public university for delivery of program offerings. Enhanced communication, information, and involvement can only lead to cooperation and unity of purpose.

The design of the TIE system is unique in the fact that it is totally instructor (user) controlled and operated. The specially designed podium allows the instructor to change cameras, origination sites and allied technologies such as VCRs and computers. The EICCD has also established an evaluation process for the TIE system. Results from this evaluation will be incorporated in future staff development sessions to a create more effective delivery of courses. Staff development programs have been developed to ensure that the technologies enhance rather than interfere with instruction. Instructors are also encouraged and aided in the process of reassessing educational objectives, strategies, and course materials for televised classes. EICCD faculty, as well as faculty from surrounding institutions who utilize the system, administrators, staff and all potential users of the system participate in this training.

It is the belief of the EICCD that the technology of the TIE system, coupled with ongoing staff development and evaluation, allows for enhanced quality, and greater diversity and accessibility to our educational offerings.

## CHAPTER II

## LITERARY SEARCH

### Early Distance Learning

The concept of learning that occurs between instructors and students separated by a distance is probably as old as the practice of letter writing. Correspondence instruction is a more formalized version of this learning process. As new technologies have emerged, radio, phonograph records, television, radio and audiotapes, computers and other developing technologies have been integrated with print materials to facilitate teaching and learning across distances.

Historically, distance learning has been at the periphery of American education. In recent decades, it has been gradually winning acceptance as a tool for filling in the gaps in our otherwise comprehensive educational system. (McNeil 1990)

During the last ten to fifteen years, a myriad of developments have emerged in both education and in the telecommunications industry which have brought distance education to the forefront. These include: educating the workforce, pupil and teacher shortage, and educational equity. (Robinson, West 1986)

In this rapidly changing world where technological developments are creating new options, it becomes increasingly important to test the validity of these methodologies in relationship to learning and teaching via a telecommunications delivery system. (Weingand 1984)

### Learning Via Telecommunications

Much of the research regarding the effectiveness of television as an educational delivery tool has been performed on systems which are non interactive (1 way video, 1 way audio). Chu and Schramm reviewed 207 published studies in which television teaching has been compared with conventional teaching. Of the 421 separate comparisons made in these studies, 308 showed no significant differences, 63 showed television instruction to be superior, and 50 found conventional instruction better. (Chu and Schram, 1967) The summaries of the majority of these comparative studies show there is no significant difference between learning from television and learning from conventional teaching; and that where there is a significant difference, it is a bit more likely to be in favor of television than of conventional instruction. (Chu and Schramm 1967) Childs (1966) and Macken (1976) both found the performance of distance and conventional students in the same courses as academically equivalent. (Clark 1989)

As previously mentioned, studies completed during the past three decades indicate performances by students on achievement-type tests are similar regardless of instructor proximity. (Chu and Schramm 1967; Denton et al 1984, Katoaka 1987; Stone 1988; Weingand 1984). Furthermore, Salomon (1981) and Clark (1983, 1989) agreed that comparable performance can be expected form students regardless of the medium.

Interactive Television

The data indicate that students do learn by televised instruction, that students perfer TV with audio talkback over videotaped instruction, and that students prefer live instruction to either kind of televised instruction (Anderson 1978).

In a number of ways, the importance of interaction with the educational process is apparent. First, interaction in the form of dialogue is a common means of educational communication whether written or verbal. (Perraton 1983; Howard 1987) Second, some investigators have shown that in classrooms with higher levels of interaction students had higher levels of achievement (Boohar and Serles 1982; Gorham 1988; McCroskey and Andersen 1976; Richmond et at 1981). Third interaction, as well as anticipated interaction, have been shown to positively influence student attitudes. (Ritchie, Newby 1989)

Two-way Televised Instruction

Previous studies have been done on interactive television, but many of these studies examined systems that were one-way video and two-way audio. Interactive two-way television has not been explored and validated in great detail.

Two-way television has been used extensively in school districts throughout the country, and with a high degree of success. (Jones 1985) Microwaves for Learning in Iowa, Communicating for Educational Purposes in Minnesota and the Irvine Project in California, are a few examples cited by Jones. No significant difference in test scores resulted when a College Learning course was taught either in person or by interactive two-way television. (Johnson, O'Connor and Rossing, 1984) Survey results also revealed no negative attitudes regarding the instructional strategy utilized. Graduate students studying supervision via interactive two-way television had positive attitudes about the mode of instruction and learned equally as well as the control group. (Johnson, O'Connor, Rossing, 1984)

A project in Illinois, the Carroll Instructional Television Consortium, researched the effectiveness of a two-way interactive system between four high schools. Preliminary results have shown that among students taking courses over the system, those students in distant schools are scoring as well as students in home schools. In over 100 hours of observations, it was noted that the biggest obstacle to the teaching/learning process was "downtime". (Robinson, West 1986)

The Carroll Instructional Television Consortium is only one example of a successful use of technology for instruction. They are not, however a panacea. There are inherent problems which are possibly unsolvable, but which do not negate the positive effects of the use of such technology.

For example, not all students will find learning via technology to be conducive to their learning style. Not all students feel comfortable learning from a "distant" teacher, nor do they feel that they get an opportunity to know classmates in other schools. (Robinson, West 1986)

In addition, the technology itself is not perfect. Anytime technology is

involved, the learning process can be interupted. There will always be problems with atmospheric and externel interferences (Robinson, West 1986)

In a separate study, undergraduate students were randomly assigned to one of three of the following settings: a traditional classroom in the presence of an instructor; a TV broadcast studio classroom in the presence of an instructor (live studio); and a studio classroom with television monitors instead of an instructor (distance). No interaction took place between the students at the sites with the television monitors and the instructor at the live studio.

Combined group comparison indicate a significant difference in participant achievement for the three groups of subjects. Specifically, a multiple-group comparison showed the distance group scored significantly higher than the studio group, while those in the traditional group did not significantly differ from either of the other two groups. This is similar to the results found in other studies without two-way audio interactions. (Elles and Mathis 1985; Stone 1988; Weingand 1984).

Students in the traditional classroom interacted twice as often as the combined total of studio and distance groups. The interactions replicate a similar study involving participant behavior in normal versus teleconference business meetings. (Perin 1983) In that study, more interaction was reported during the normal, face-to-face meetings than during those televised. Perin (1983) also reported that the interaction within the televised meeting was more concise and contained a lower non-verbal component. Additionally, participants reported enjoying teleconferencing less, but felt they accomplished more. (Ritchie, Newby 1987)

Similar to Perin's (1983) study, the perceived attitudes of the participants, as measured on the post-instruction attitude survey, differed significantly based on the manner in which the instruction was experienced. Responses differed in enjoyment, involvement and comfort were reported by students. Students in the normal classroom situation rated the instruction significantly more enjoyable than those in the distance group. The traditional classroom group differed significantly from the distance group in reporting greater comfort. When questioned about their perception of involvement in the instructional process, those in the distance situation rated their experience significantly lower than those in the normal classroom setting. (Ritchie, Newby 1989)

Results of these perceptions indicate that distance students experience less involvement, less ability to ask questions and less overall enjoyment.

A number of researchers state that education is a social process (Brufee 1982; Solomon 1981), and interaction should play an integral part. As shown with this study, the amont and type of interaction did not have an impact on overall performance; however those participants experiencing more interaction also reported being more at ease and enjoying the instructional situation more. Even if interaction does not have a significant effect on performance, attitudes may have important implications. (Ritchie and Newby) For example, a lower dropout rate for live video instruction with two-way audio has been attributed partially to the interaction opportunity available to distance students. (Garrison 1987) Thus, the forementioned study reveals that more

positive perceptions were reported by the group of subjects who interacted the most, those in the traditional setting. (Ritchie, Newby 1989)

It could be argued, in the context of research by Cross (1976), that interactive television takes us beyond education for all and toward education for each. (Bisesi) From what we know on the basis of hundreds of studies, it seems that the question facing educators today concerning instructional television is not whether a teacher can teach efficiently on television. There can no longer be any doubt about this. The question, rather, is how to make the most effective use of television as an instrument of teaching. (Chu and Schramm 1967).

## CHAPTER III

## THE STUDY

### PURPOSE

The purpose of this report is to provide both formative and summative results concerning the FY90 operation of the Eastern Iowa Community College District's (EICCD) Televised Interactive Education (TIE) System. The report focuses on six main measures:

- System use
- Class enrollments
- Average grade per site
- Student evaluation of the system
- Evaluation of students who have withdrawn from TIE classes
- Instructor evaluation

The report will also provide recommendations arising from the study regarding the technical aspects of the system, staff development, and necessary support systems.

## SYSTEM USE

System use identifies the major uses of the system in hours. The TIE system is used for instructional delivery of classes for the EICCD, Marycrest College and the University of Iowa. The system is also used for administrative, faculty counterpart and student government meetings.

System usage for fall 89 semester averaged 42.2 hours per week; spring semester usage averaged 35.97 hours per week. For complete results, see Tables 1 and 2.

Table 1
Fall 89 System Usage

| | | |
|---|---|---|
| EICCD Instructional Hours | 568.0 | 84.1% |
| University of Iowa Instructional Hours | 42.0 | 6.2% |
| Marycrest College Instructional Hours | 52.5 | 7.8% |
| Meetings | 13.0 | 1.9% |
| Total | 675.5 | 100.0% |

Average Hours Per Week = 42.22*
* Based on a 16 week semester

Figure 1

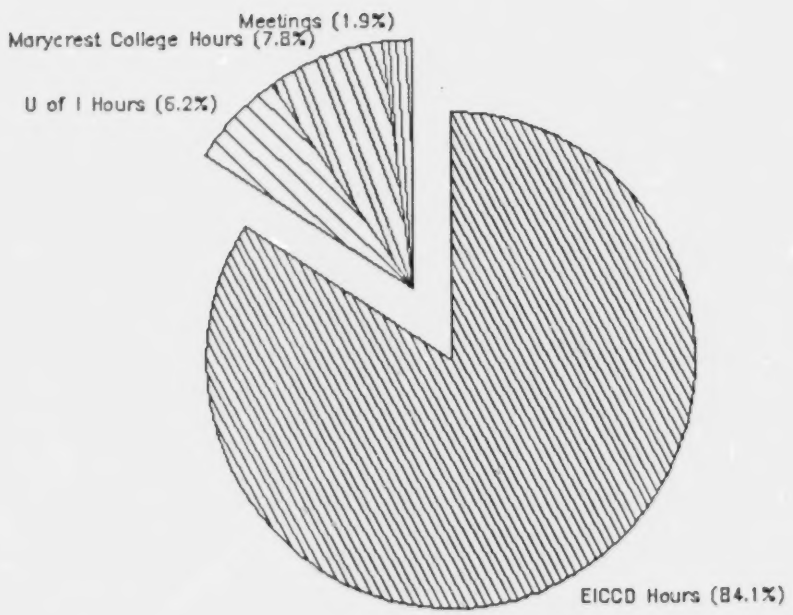
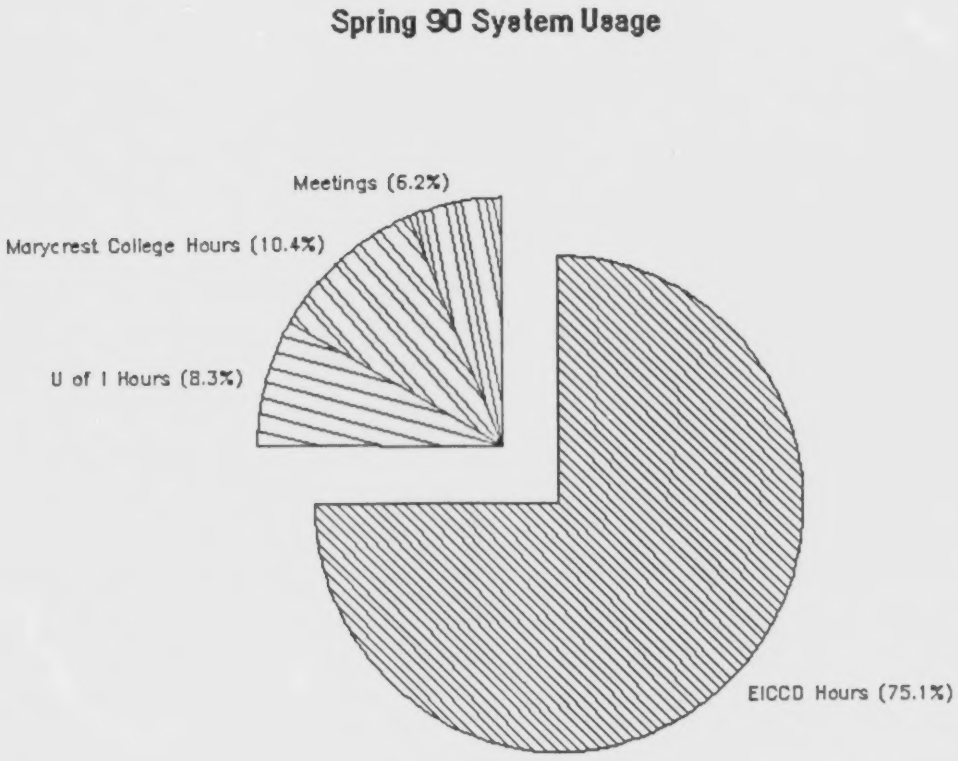


Table 2
Spring 90 System Usage

| | | | |
|---|---|---|---|
| EICCD Instructional Hours | | 432.0 | 75.1% |
| University of Iowa Instructional Hours | | 48.0 | 8.3% |
| Marycrest College Instructional Hours | | 60.0 | 10.4% |
| Meetings | | 35.5 | 6.2% |
| | Total | 575.5 | 100.0% |

Average Hours Per Week = 35.97*
* Based on a 16 week semester

Figure 2

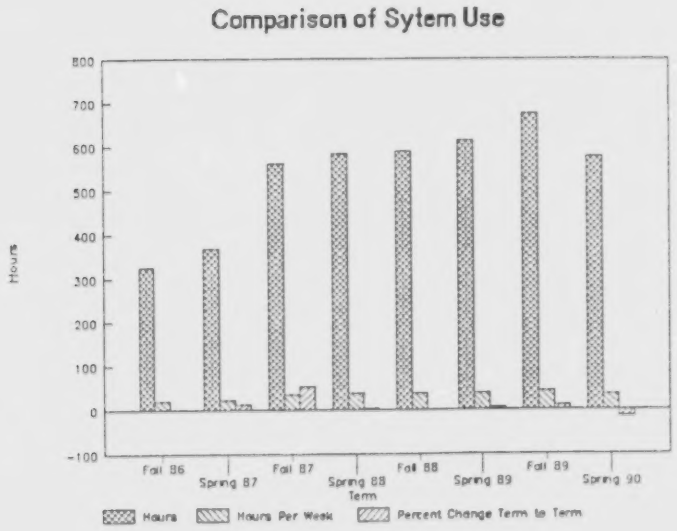


An historical search was done to compare current system usage with that of past years. The results can be found in Table 3.

Table 3
Comparison of System Use

| Term | Hours | Hours Per Week | % Change From Previous Term |
|---|---|---|---|
| Fall 86 | 326.0 | 20.4 | -- |
| Spring 87 | 367.0 | 22.9 | +12.6 |
| Fall 87 | 560.0 | 35.0 | +52.6 |
| Spring 88 | 581.0 | 36.3 | +3.8 |
| Fall 88 | 586.5 | 36.7 | +0.9 |
| Spring 89 | 612.0 | 38.3 | +4.3 |
| Fall 89 | 675.5 | 42.2 | +10.4 |
| Spring 90 | 575.5 | 36.0 | -14.8 |

Figure 3



## CLASS ENROLLMENTS

### FALL 89

During the fall 89 semester, 11 EICCD classes ran on the system serving a total of 258 students. The class schedule can be seen in Table 4.

Table 4
EICCD Class Enrollments for Fall 89

EICCD Class Schedule

| Class | Instructor | Sites |
|---|---|---|
| Environmental Biology | Mark Aronson | SCC to MCC |
| College Physics | Tom Gibbons | CCC to MCC |
| Engineering Physics | Tom Gibbons | CCC to MCC |
| Sampling & Analysis | John Bonte | CCC to MCC & SCC |
| Modern Russia | David Krein | SCC to MCC & CCC |
| Organic Chemistry | John Bonte | CCC to MCC |
| Rec/Inc/Disp | Mike Steinmaus | MCC to SCC & CCC |
| Industrial Processes | Deb Sawyer | SCC to MCC & CCC |
| Regulations I | Doug Getting | SCC to MCC & CCC |
| HAZCOM | Doug Getting | SCC to MCC & CCC |
| Emergency Response I | Doug Getting | SCC to MCC |

The EICCD student enrollment for classes utilizing the TIE system for fall 89 semester totalled 258 students for the first week of class and ended the semester with 235. There were 119 students enrolled at origination sites and 116 students enrolled at remote sites at the end of the semester. "Origination" site students are those students who are in the same physical classroom as the instructor and can watch him or her in person or on a monitor. "Remote" site students are those students who are physically distanced from the instructor and view him or her via a television monitor. Enrollment changes are shown in Table 7.

The University of Iowa ran one class on the TIE system during the fall 89 semester. The class Family Therapy linked up Scott Community College and the University of Iowa and served 49 students. Enrollment changes are shown in Table 8.

Marycrest College ran four classes on the TIE System during the fall 89 semester. These classes included: Clinical Concepts, Underlying Disease processes, Introduction to Baccalaureate Nursing, Nursing Research and

Community Health Nursing and served a total of 48 students. Enrollment changes are shown in Table 9.

The total number of students served by the TIE system during the fall 89 semester was 355.

SPRING 90

During the spring 89 semester 8 EICCD classes ran on the system serving a total of 218 students. The class schedule can be seen in Table 5.

Table 5
EICCD Class Enrollments for Spring 90

EICCD Class Schedule

| Class | Instructor | Sites |
|---|---|---|
| Changes & Choices | Martha Bonte<br>Carol Casebolt | MCC to CCC |
| Organic Chemistry II | John Bonte | CCC to MCC |
| Hazard Comm. Standard | Doug Getting | SCC to MCC & CCC |
| Hazardous Materials Regulations I | Doug Getting | SCC to MCC & CCC |
| Nazi Germany | David Krein | SCC to MCC & CCC |
| Health Effects | Doug Getting | SCC to MCC & CCC |
| Regulations II | Deb Sawyer | SCC to MCC & CCC |
| Regulations III | Richard Fritz | SCC to MCC & CCC |

The EICCD student enrollment for classes utilizing the TIE system for spring 90 semester totalled 218 students for the first week of class and ended the semester with 194. There were 111 students enrolled at origination sites and 83 students enrolled at remote sites at the end of the semester. Enrollment changes are shown in Table 10.

The University of Iowa ran one class on the TIE system during the spring 90 semester. The class, Oncology, Nursing, linked up Scott Community College, the University of Iowa and Kirkwood Community College. This class served 26 students. Enrollment changes are shown in Table 11.

Marycrest College ran four classes on the TIE system during the spring 90 semester. These classes included: Issues and Trends, The New Testament, Clinical Concepts Underlying Disease Processes and Introduction to Baccalaureate Nursing and served a total of 63 students.

The total number of students enrolled on the TIE system during the spring 90 semester way 307.

## COMPARISON OF NUMBER OF CLASSES

Looking historically at the number of classes offered, the fall 89 semester contained the largest number with 16. For complete results, see Table 6.

Table 6
Comparison of Number of Classes

| Term | Number of Classes |
|---|---|
| Fall 86 | 5 |
| Spring 87 | 8 |
| Fall 87 | 11 |
| Spring 88 | 15 |
| Fall 88 | 13 |
| Spring 89 | 14 |
| Fall 89 | 16 |
| Spring 90 | 13 |

The following Tables 7 through 11 display the enrollment changes for fall and spring semester at the EICCD, the University of Iowa, and Marycrest College.

Table 7
EICCD
Fall 89 Enrollment Change

| | Number of Students | Percentage Change |
|---|---|---|
| Total Change | - 23 students | -8.91% |
| Origination Sites | - 11 students | -8.46% |
| Remote Sites | - 12 students | -9.38% |

For comparison, the overall withdrawal rate for the EICCD during the fall 89 semester was 14.99%.

Table 8
University of Iowa
Fall 89 Enrollment Change

| | Number of Students | Percentage Change |
|---|---|---|
| Total Change | - 1 student | -2.04% |
| Origination Sites | - 0 student | 0% |
| Remote Sites | - 1 student | -5.56% |

Table 9
Marycrest College
Fall 89 Enrollment Change

| | Number of Students | Percentage Change |
|---|---|---|
| Total Change | - 0 student | 0% |
| Origination Sites | - 0 student | 0% |
| Remote Sites | - 0 student | 0% |

Table 10
EICCD
Spring 90 Enrollment Change

| | Number of Students | Percentage Change |
|---|---|---|
| Total Change | - 24 students | -11.01% |
| Origination Sites | - 24 students | -15.26% |
| Remote Sites | - 4 students | -4.60% |

For comparison, the overall withdrawal rate for the EICCD during the Spring 90 semester was 14.55%.

Table 11
University of Iowa
Spring 90 Enrollment Change

| | Number of Students | Percentage Change |
|---|---|---|
| Total Change | - 4 students | 15.00% |
| Origination Sites | - 4 students | 17.00% |
| Remote Sites | - 0 students | -0.0% |

Marycrest spring enrollment changes were unavailable at the time of printing.

## AVERAGE GRADE PER SITE

The final grades of the students in TIE classes were then examined. The average grades for EICCD classes for fall 89 and spring 90 semesters are listed in Tables 12 and 14. The grade point averages of the remote site students were then compared with the grade point averages of the origination site students (Tables 13 and 15).

Table 12
Fall 89
Average EICCD Grade per Site
(4 point scale)
(Bold print signifies origination site)

| Class | CCC | MCC | SCC |
|---|---|---|---|
| Environmental Biology | - | 4.00 | **2.54** |
| College Physics | 3.11 | 2.89 | - |
| Engineering Physics | **3.33** | 3.00 | - |
| Sampling & Analysis | **3.25** | 4.00 | 3.00 |
| Modern Russia | 4.00 | 2.40 | **3.45** |
| Organic Chemistry I | **3.17** | 3.50 | - |
| Rec/Incin/Disp | 1.45 | **3.34** | 4.00 |
| Industrial Processes | 1.50 | 3.25 | **2.00** |
| HAZMAT Regulations I | 3.44 | 3.83 | **2.81** |
| HAZCOM Standard | 3.59 | 2.75 | **2.65** |
| Emergency Response I | - | **3.89** | 3.40 |

Table 13
Fall 89
Overall EICCD Grade Point Averages

| | |
|---|---|
| Average GPA for remote classroom students | 3.21 |
| Average GPA for origination classroom students | 3.00 |
| Difference | .21 |

The students at the **remote sites** received grades an average of **.21 higher** on a 4.0 scale than students at the origination sites.

Table 14
Spring 90
Average EICCD Grade per Site
(4 point scale)
(Bold print signifies origination site)

| Class | CCC | MCC | SCC |
|---|---|---|---|
| Changes & Choices | **3.22*** | **1.83*** | - |
| Organic Chemistry II | **3.00** | 3.25 | - |
| HAZCOM Standard | 3.50 | 3.25 | **2.60** |
| HAZMAT Regulations I | 2.00 | 4.00 | **3.06** |
| Nazi Germany | 2.00 | 2.38 | **3.17** |
| HAZMAT Health Effects | 3.58 | 4.00 | **3.55** |
| HAZMAT Regulations II | 2.13 | - | **2.30** |
| HAZMAT Regulations III | 3.27 | 3.00 | **3.60** |

* The class was team taught with instructors at both sites.

COMPARISON OF GRADE POINT AVERAGES

Table 15
Spring 90
Overall EICCD Grade Point Averages

| | |
|---|---|
| Average GPA for remote classroom students | 3.03 |
| Average GPA for origination classroom students | 3.04 |
| Difference | .01 |

The students at the remote sites received grades an average of .01 lower on a 4.0 scale than students at the origination sites. This was not a significant differnce.

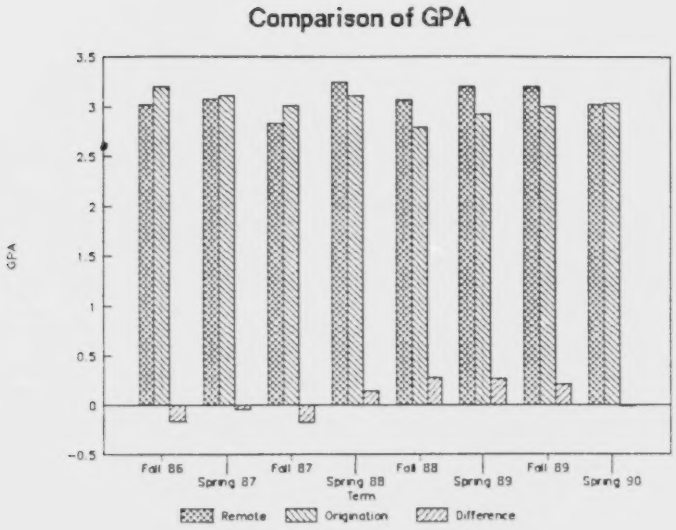
The EICCD's overall GPA for the spring 90 term was 2.67.

An historical search was done to compare GPAs of remote and origination site students. A numerical and graphic display is listed below.

Table 16
Comparison of GPA

| Term | Remote Site | Origination Site | Remote Difference |
|---|---|---|---|
| Fall 86 | 3.03 | 3.20 | -.17 |
| Spring 87 | 3.08 | 3.12 | -.04 |
| Fall 87 | 2.84 | 3.02 | -.18 |
| Spring 88 | 3.25 | 3.11 | +.14 |
| Fall 88 | 3.07 | 2.79 | +.28 |
| Spring 89 | 3.20 | 2.93 | +.27 |
| Fall 89 | 3.21 | 3.00 | +.21 |
| Spring 90 | 3.03 | 3.04 | -.01 |

Figure 4




To compare GPAs of remote and origination sites, a t-test was performed using the semester as the unit of analysis and a five percent level of significance. Each class was weighted equally. There is **no significant difference** between the grades of origination and remote site students.

## STUDENT EVALUATION OF THE TIE SYSTEM

The student midterm and final TIE system evaluation forms were developed by a project team of institutional research, curriculum design and telecommunications personnel.

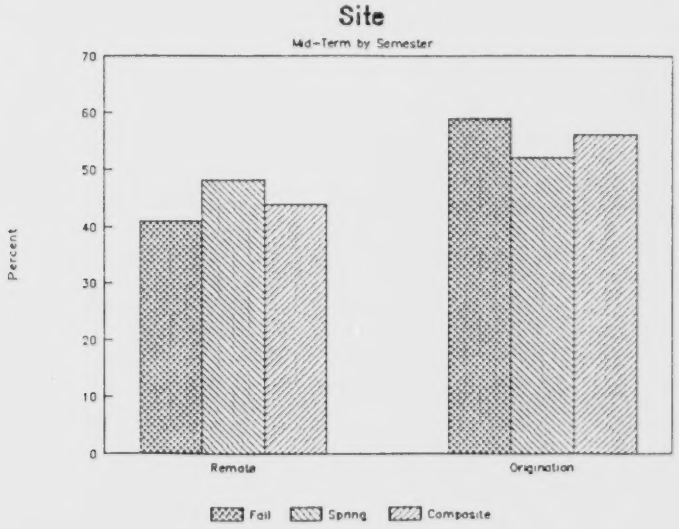
Students (EICCD, University of Iowa, and Marycrest College) were asked to evaluate their experience in a TIE class at both midterm and end of class. The evaluation instruments are included in Appendices A and B. The midterm evaluation consisted of items 1, 2, 3, 5, 7, 8, 11, 12, 14, 15, and 16 from the final evaluation form.

The TIE midterm evaluation form was mailed to TIE instructors and support personnel previous to onstart of semester midterms. The instructors were asked to distribute the surveys to their students and return the completed forms to the office of Academic Affairs and Planning for fall semester 1989. 161 forms were returned. 108 spring TIE midterm evaluations were returned. This represents a combined midterm total for both FY90 spring and fall semesters of 269. The surveys were tabulated and analyzed using the Statistical Package for the Social Sciences (SPSS).

## MIDTERM STUDENT EVALUATION RESULTS

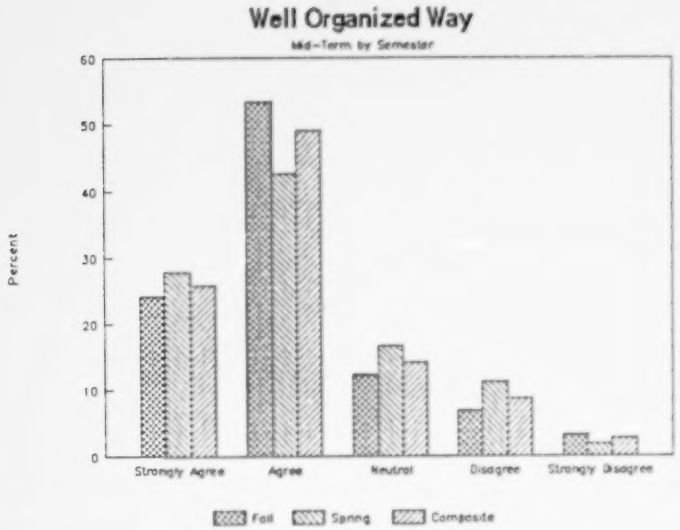
The students were asked to check the appropriate blank on the form to indicate whether they were origination site students (at the same locale as the instructor) or remote site students (at a site different from that of the instructor). The spring semester midterm results contained a larger proportion of remote site students than the fall semester. The combined results (spring and fall semester midterm) indicate 43.9% of the responses were from remote site students and 56.1% of the responses were from origination site students. The alpha level used to determine significance was .05. For complete results, see Figure 5.

Figure 5



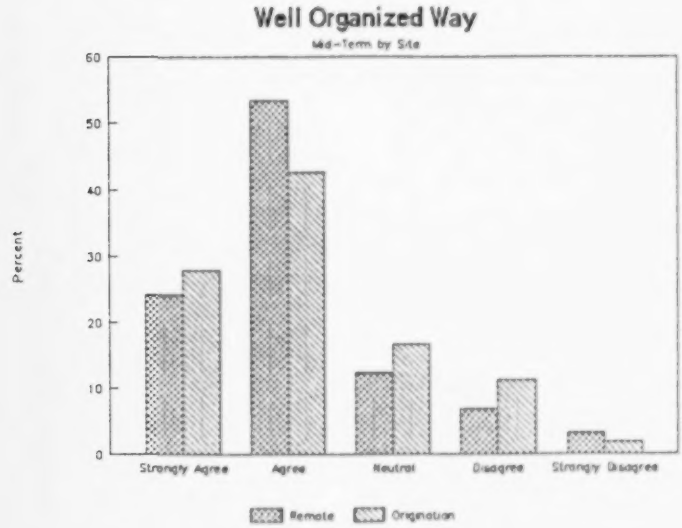
The students were asked to indicate if their TIE course was being presented in a well organized way. Three quarters of the respondents (74.8%) agreed their TIE course was being presented in a well organized manner. For complete results, see Figure 6.

Figure 6



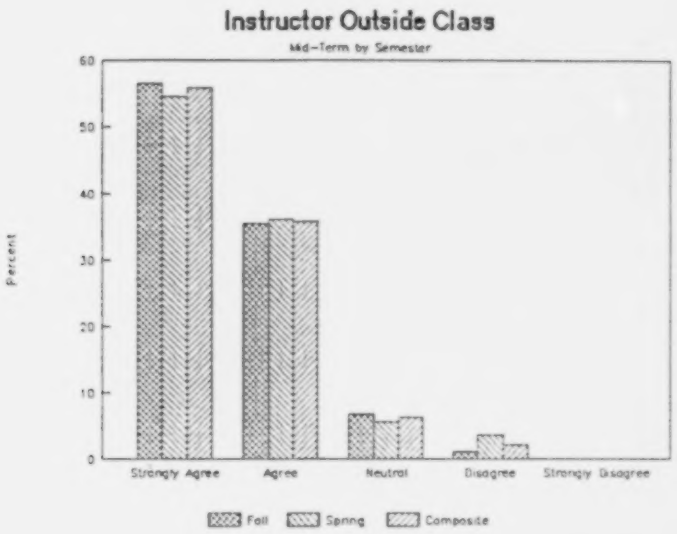

A significant difference is noted in the answers of remote and origination site students regarding class organization. 87.4% of the origination site students agreed that their TIE class was being presented in a well organized manner compared to 57.8% agreement from remote site students. For complete results, see Figure 7.

Figure 7



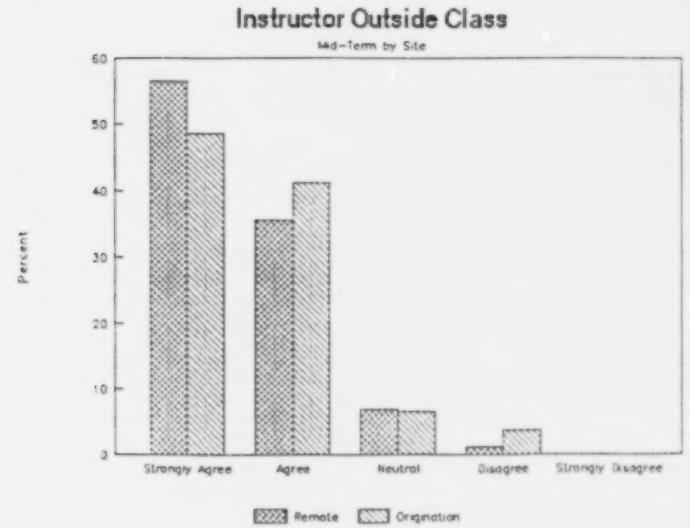
The students were asked to indicate if their instructor had given instructions on how to reach him/her outside of class. 91.5% of the respondents indicated they had been informed of how to reach their instructor outside of the class. For complete results, see Figure 8.

Figure 8




There was no significant difference in agreement of remote and origination site students on if the instructor had given instructions on how to be reached outside of class. For complete results, see Figure 9.

Figure 9

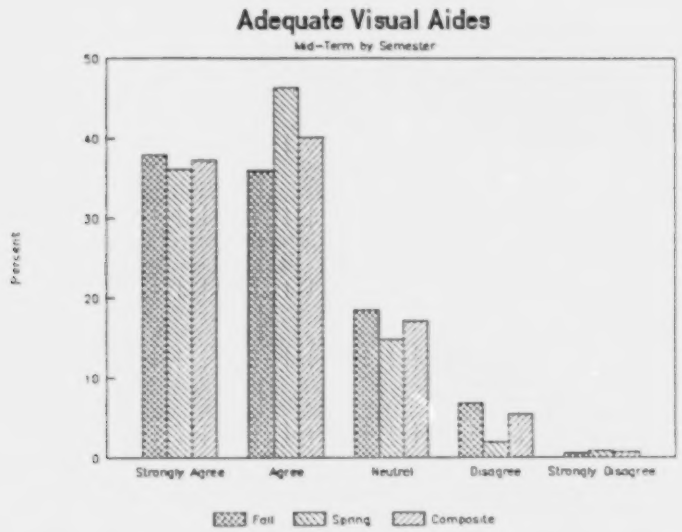





BEST COPY AVAILABLE

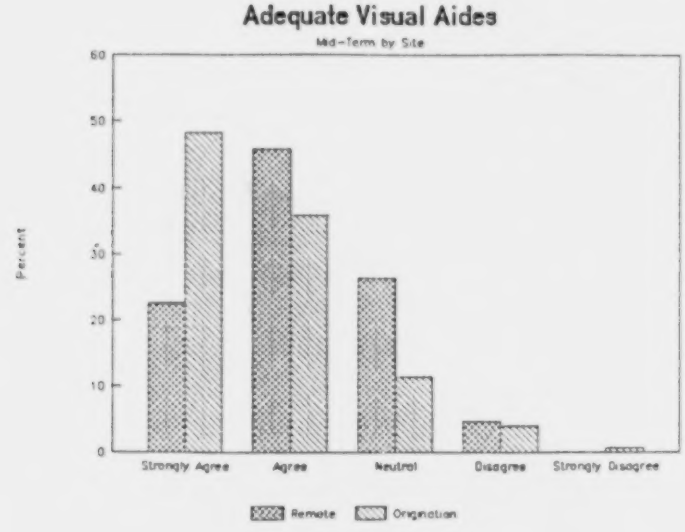
The students were asked to indicate if their instructor uses adequate visual aids. Over three quarters (77.3%) indicated adequate visual aids were used. Only 6.1% of the respondents felt visual aids were inadequate. For complete results, see Figure 10.

Figure 10



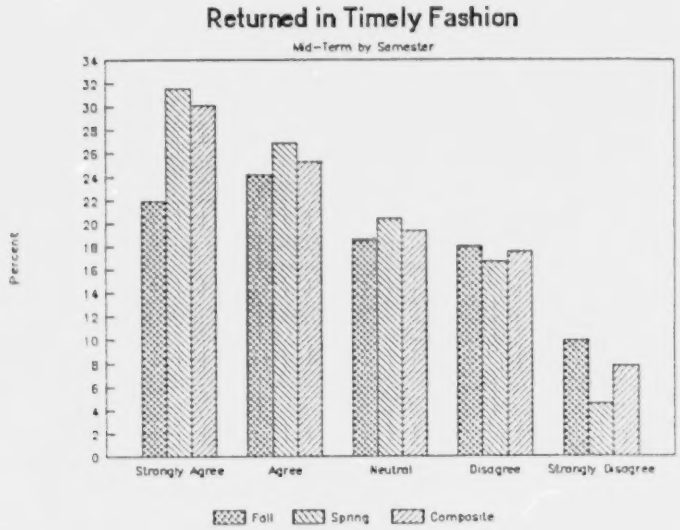

A significant difference is noted in the answers of remote and origination site students regarding the use of adequate visual aides. 34.1% of the origination site students agreed that the instructor used adequate visual aids in contrast to 68.2% agreement from the remote site students. For complete results, see Figure 11.

Figure 11



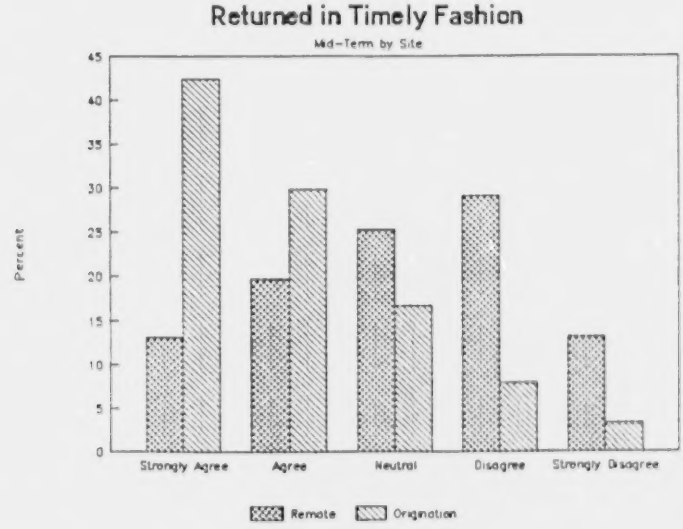
The students were asked to indicate if their assignments and tests were returned in a timely fashion. 55.4% agreed assignments were returned in a timely fashion whereas 25.8% of the respondents were dissatisfied. The complete results can be found in Figure 12.

Figure 12



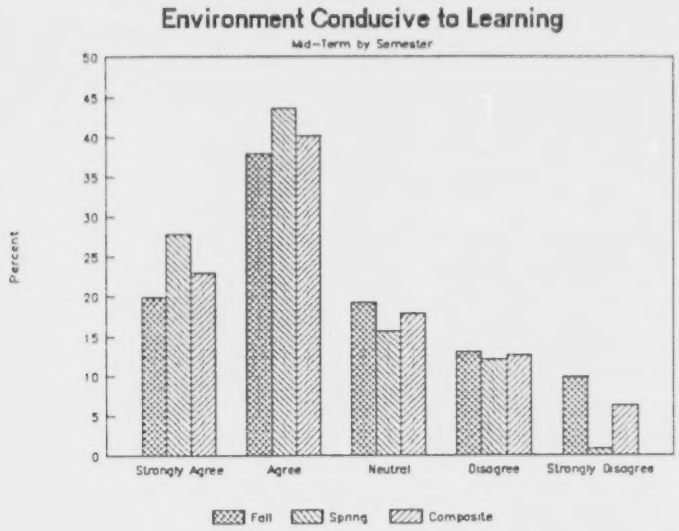

A significant difference is noted in the responses of remote and origination site students regarding the timely return of assignments and tests. 72.2% of origination site students agreed that assignment were returned in a timely fashion; only 36.7% of remote site students agreed. Complete results are found in Figure 13.

Figure 13



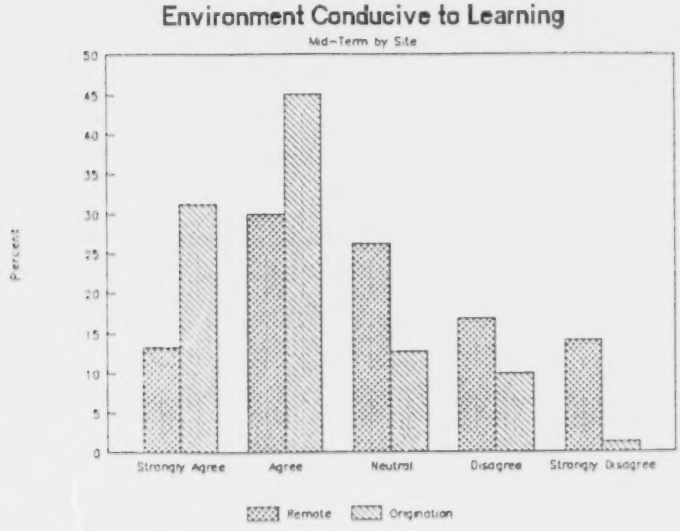
The respondents were asked to indicate if the classroom environment was conducive to learning. 63.1% of the respondents agreed that the classroom environment was conducive to learning. A discrepancy between fall and spring responses is evident in this item. Only 57.8% of fall semester respondents as opposed to 71.3% of the spring respondents indicated the classroom environment to be conducive to learning. For complete results, see Figure 14.

Figure 14



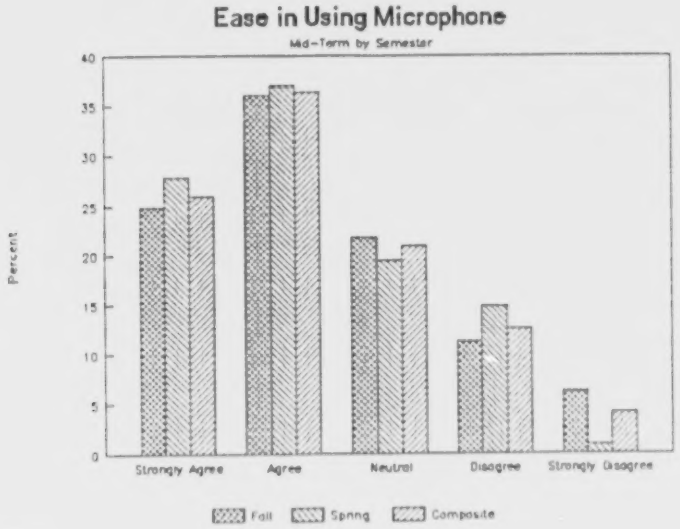

A significant difference was found in the responses regarding the classroom environment. 76.1% of origination site students agreed the environment was conducive to learning compared to 43.0% of remote site students. Comments from respondents indicated they felt the classroom was not heated properly. For complete results, see Figure 15.

Figure 15



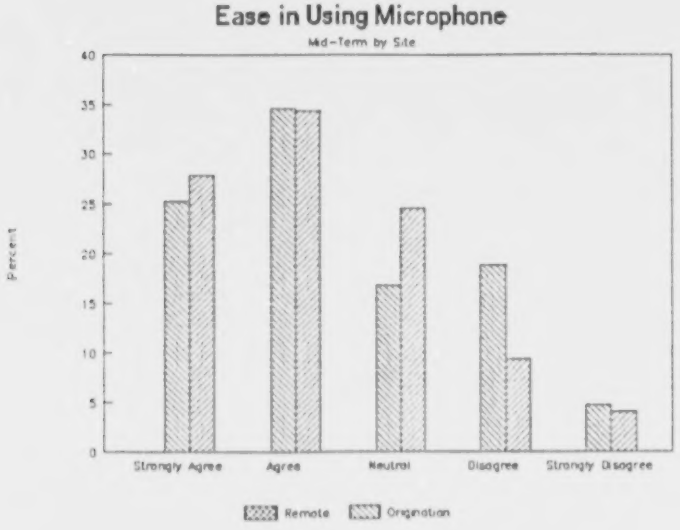
The students were asked if they felt at ease using their microphone to get the instructor's attention. 62.4% indicated they felt at ease using the microphones; 16.7% of the respondents did not feel at ease using the microphones. For complete results, see Figure 16.

Figure 16




No significant difference was found in the origination and remote students responses to ease in using the microphone. For complete results, see Figure 17.

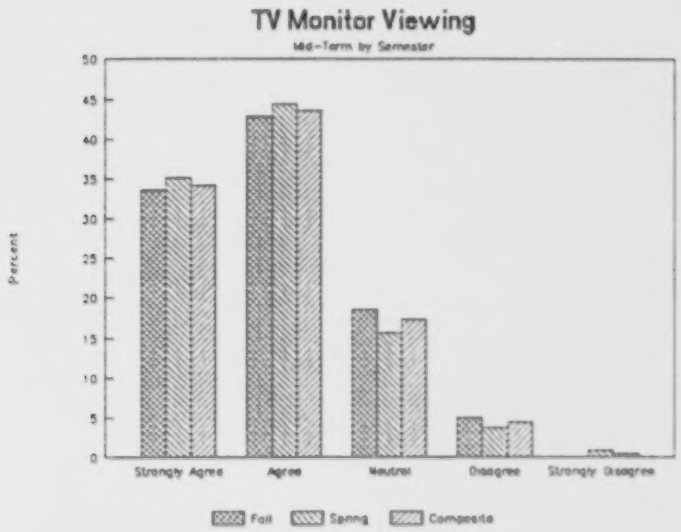
Figure 17




BEST COPY AVAILABLE

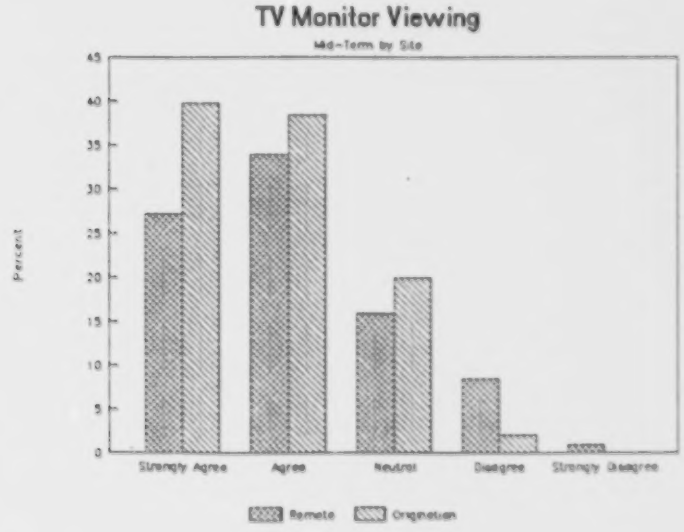
The students were asked to indicate if the TV monitor in their classroom was adequate for viewing the instructor. More than three quarters (77.7%) agreed the TV monitors were adequate for viewing. Less than five percent (4.9%) disagreed with the adequacy of monitor viewing. For complete results, see Figure 18.

Figure 18



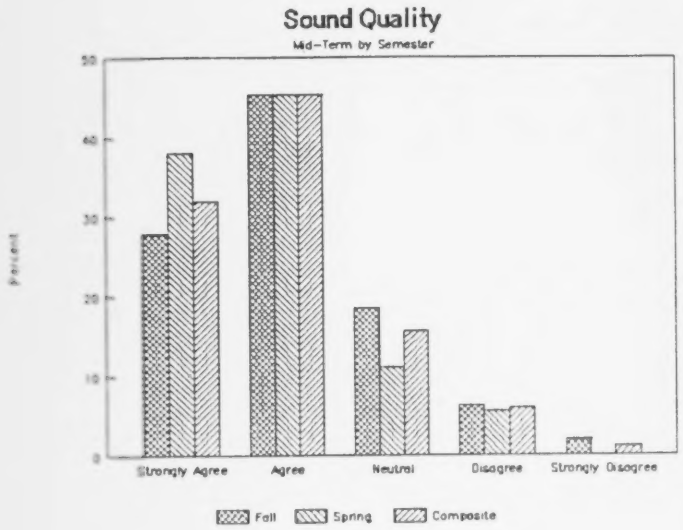

A significant difference was cited between remote and origination site students regarding TV monitor viewing. 78.1% of origination site students agreed the monitor was adequate for viewing the instructor; 60.9% of remote site students agreed. For complete results, see Figure 19.

Figure 19



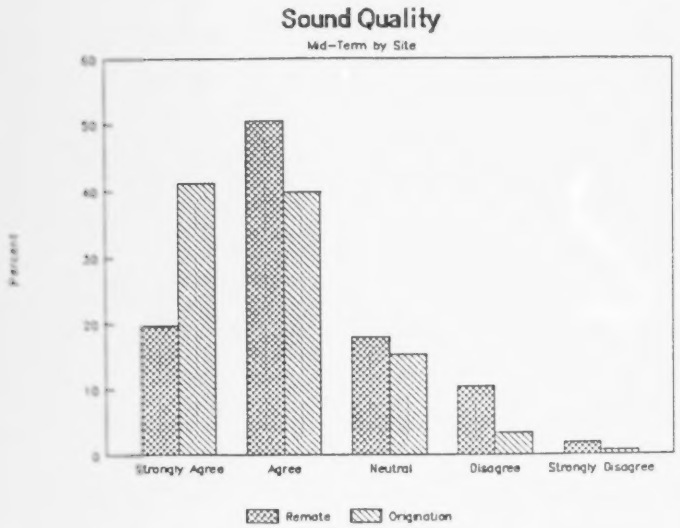
The students were asked to indicate if the sound quality of the TIE system was adequate. 77.4% of the respondents indicated the sound quality was adequate. For complete results, see Figure 20.

Figure 20



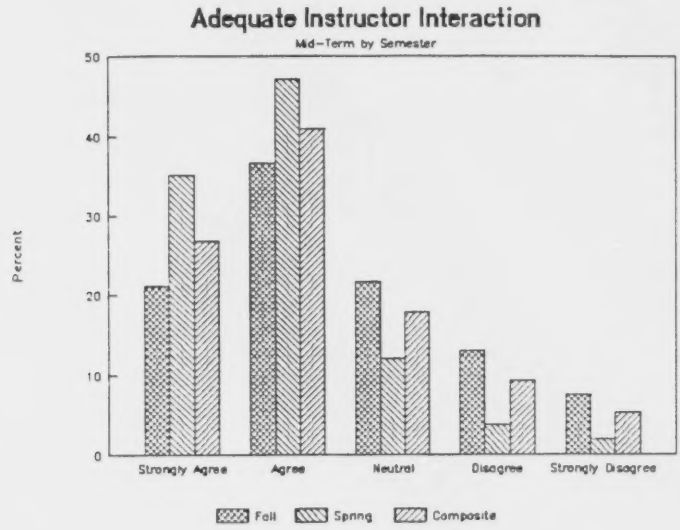

There was no significant difference in student responses regarding sound quality. For complete results, see Figure 21.

Figure 21



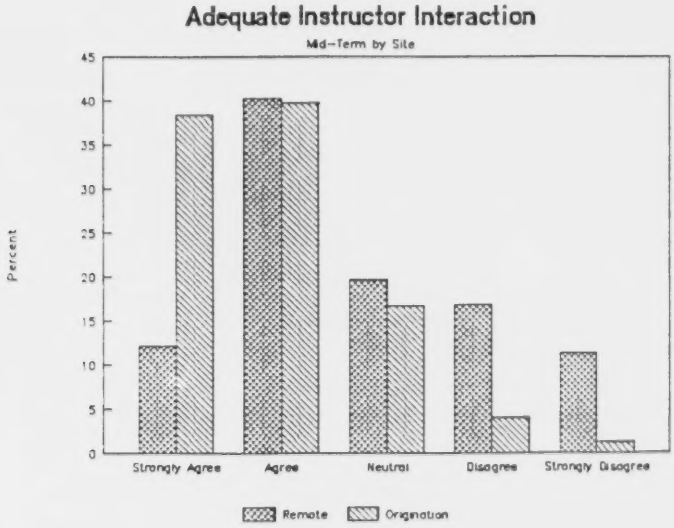
The respondents were asked to indicate if the TIE system allowed them adequate interaction with their instructor. Two thirds (67.7%) of the respondents indicated the availability of adequate interaction. A noted difference can be found in responses from the fall and spring semesters. Adequate interaction was indicated by 57.8% and 82.4% respectively. This is a 24.6% difference. For complete results, see Figure 22.

Figure 22




A significant difference was found between remote and origination site students regarding adequate interaction with the instructor. 78.1% of origination site students agreed the system allowed them adequate interaction compared to 52.3% agreement from remote site students. For complete results, see Figure 23.

Figure 23

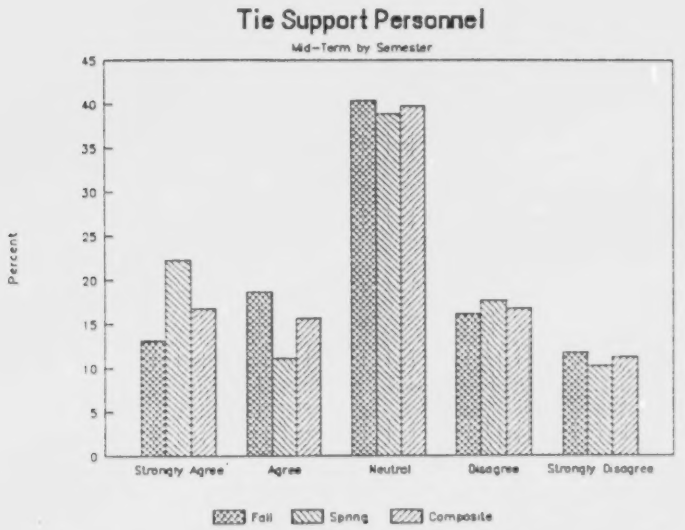





BEST COPY AVAILABLE

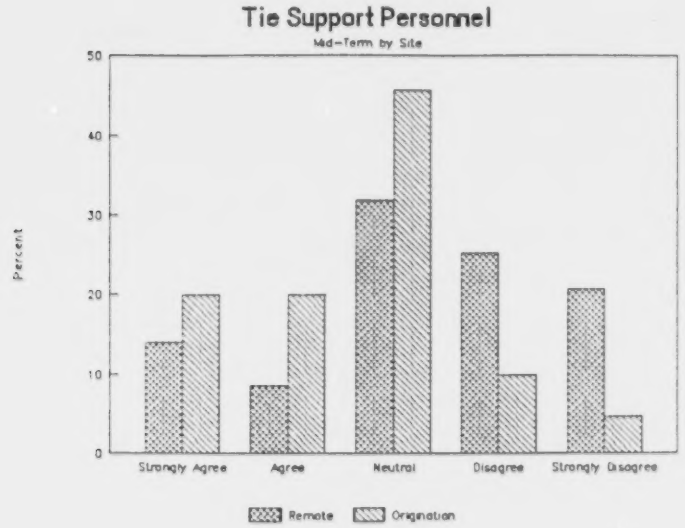
Respondents were asked to indicate if TIE support personnel should remain in the classroom throughout the class period. Nearly one third (32.3%) of the respondents favored this proposal; 27.9% disagreed and 39.8% were neutral. For complete results, see Figure 24.

Figure 24



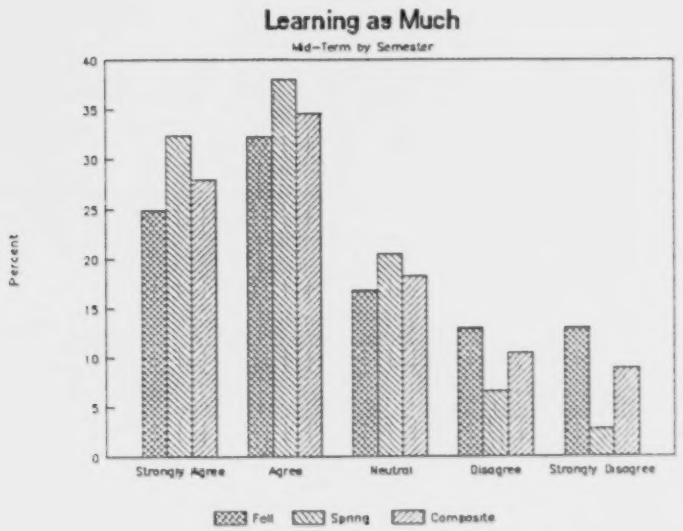

A significant difference was found between remote and origination site student responses when asked if TIE support personnel should remain in the classroom. 39.8% of origination site students agreed with this statement compared to only 22.4% of the remote site students. For complete results, see Figure 25.

Figure 25



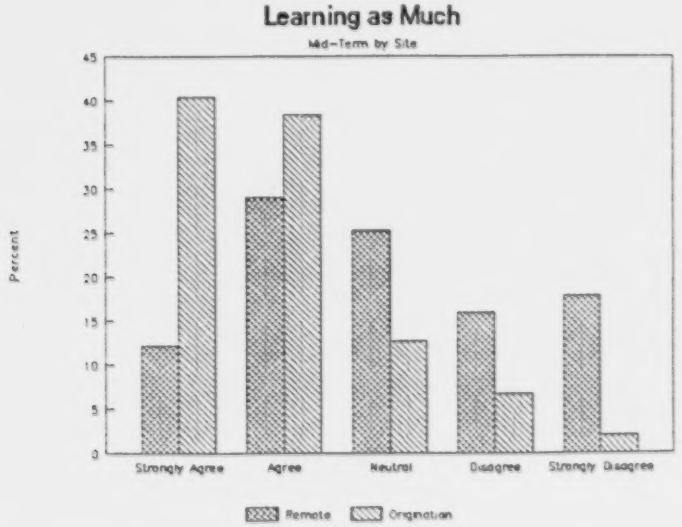
When the respondents were asked if they were learning as much in their TIE course as they would in a "regular" course, 62.5% indicated yes while 19.3% indicated no. Results between the fall and spring respondents show a difference. 57.1% of the fall respondents felt they were learning as much compared with 70.4% of the spring respondents. 26% of the fall respondents felt they were not learning as much compared with only 9.4% of the spring respondents. For complete results, see Figure 26.

Figure 26



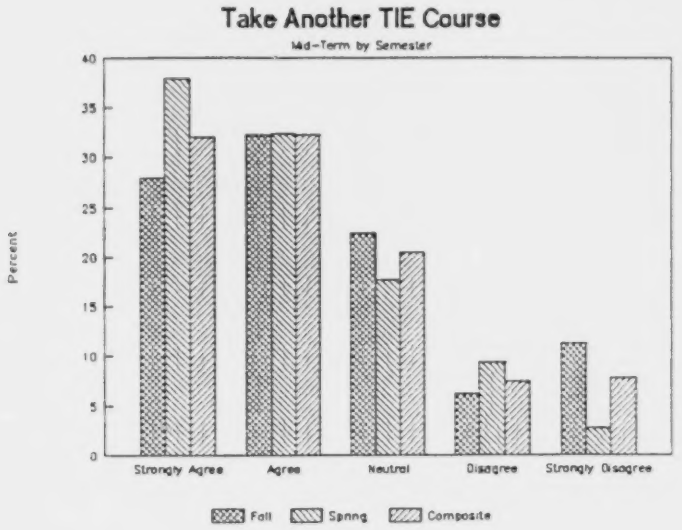

A significant difference was noted between responses of remote and origination site students on if they were learning as much in this course as in a "regular" course. Only 8.6% of origination site students felt they were **not** learning as much in their TIE course compared to 33.7% of remote site students. For complete results, see Figure 27.

Figure 27



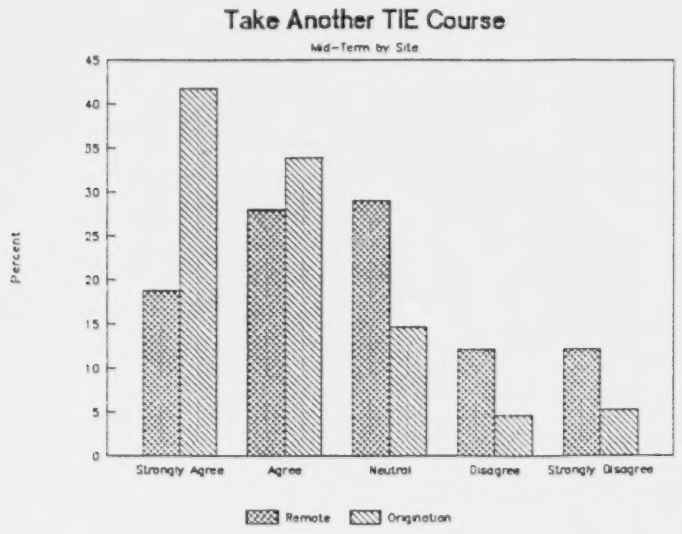
When asked if they would take another TIE course, 64.3% of the respondents indicated they would. 15.2% of the respondents indicated they would not take another TIE course. For complete results, see Figure 28.

Figure 28




A significant difference was noted between responses of remote and origination site students regarding the taking of another TIE course. 9.9% of origination site students responded they would **not** take another TIE course compared to 24.2% of remote site students. For complete results, see Figure 29.

Figure 29





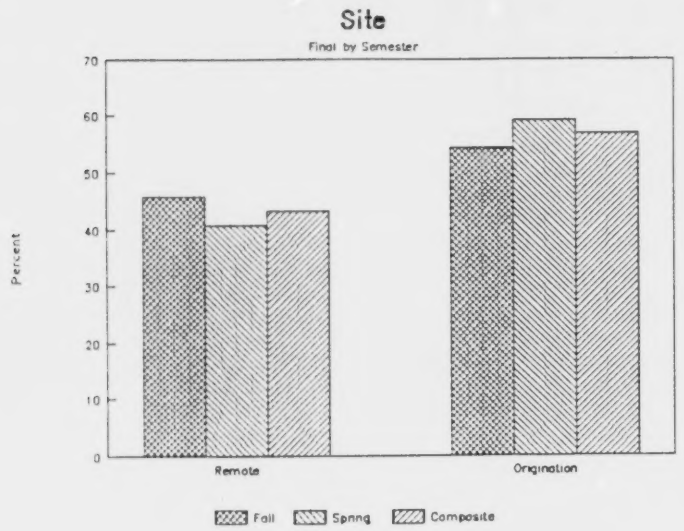

BEST COPY AVAILABLE

## FINAL STUDENT EVALUATION RESULTS

The TIE final evaluation form was mailed to TIE instructors and support personnel previous to the onstart of semester finals. The instructors were asked to distribute the surveys to their students and return the completed forms to the Office of Academic Affairs and Planning. 92 forms were returned for fall semester; 98 forms were returned for spring semester. This represents a combined final total for both FY90 fall and spring semesters of 190. The surveys were tabulated and analyzed using the Statistical Package for the Social Sciences (SPSS).

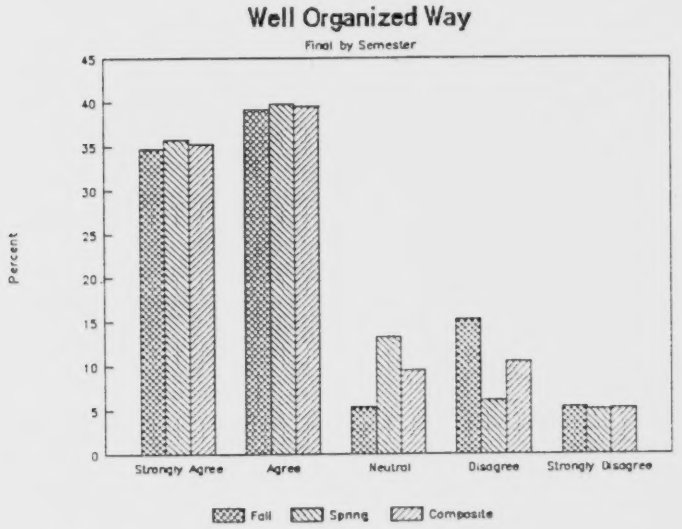
The students were asked to check the appropriate blank on the form to indicate whether they were origination site students (at the same locale as the instructor) or remote site students (at a site different from that of the instructor). The spring semester final results contained a smaller proportion of remote site students than the fall semester. The combined results (spring and fall semester final) indicate 43.2% of the responses were from remote site students and 56.8% of the responses were from origination site students. The alpha level to determine significance was .05. For complete results, see Figure 30.

Figure 30



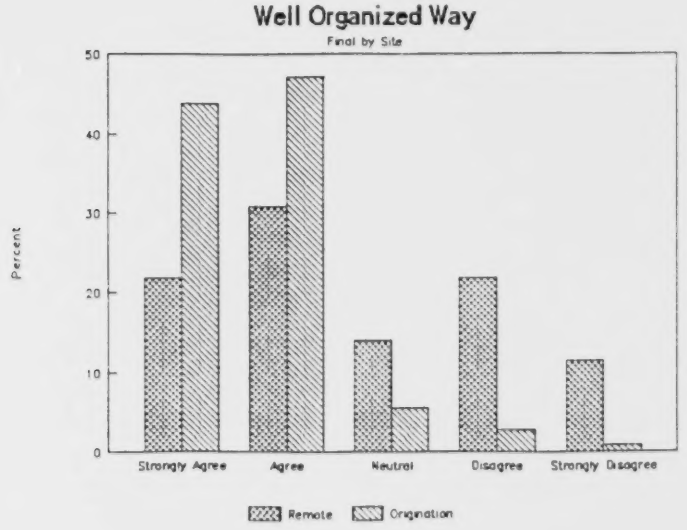
The students were asked to indicate if their TIE course was being presented in a well organized way. Three quarters of the respondents (74.8%) agreed their TIE course was being presented in a well-organized manner. For complete results, see Figure 31.

Figure 31



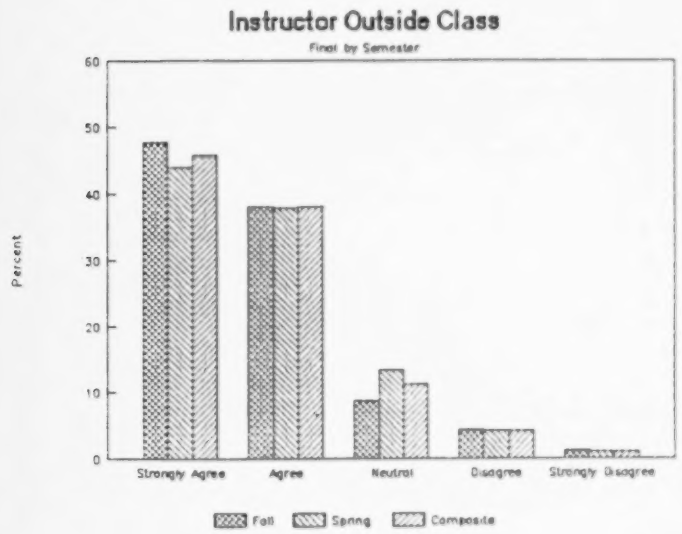

A significant difference is noted between origination and remote site students regarding class organization. 91.1% of the origination site students agreed that their TIE class was being presented in a well organized manner compared to 52.6% agreement from remote site students. For complete results, see Figure 32.

Figure 32



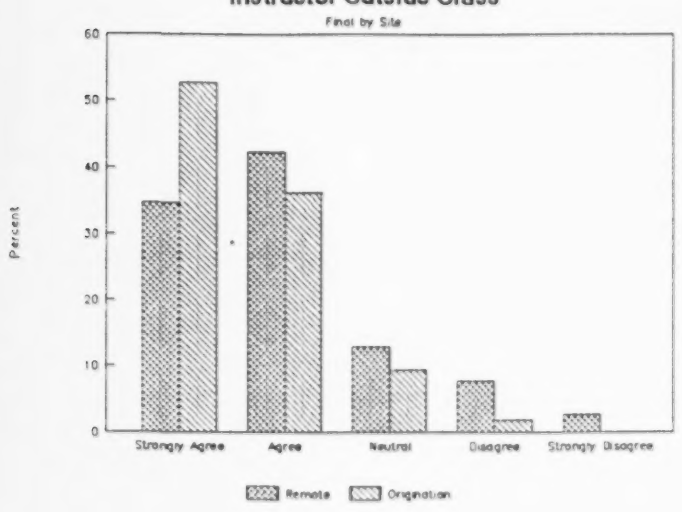
The students were asked to indicate if their instructor had given instructions on how to reach him/her outside of class. 83.7% of the respondents indicated they had been informed of how to reach their instructor outside of the class. For complete results, see Figure 33.

Figure 33




There was no significant difference in agreement of remote and orgination site students on if the instructor had given adequate instructions on how to be reached outside of class. For complete results, see Figure 34.

Figure 34

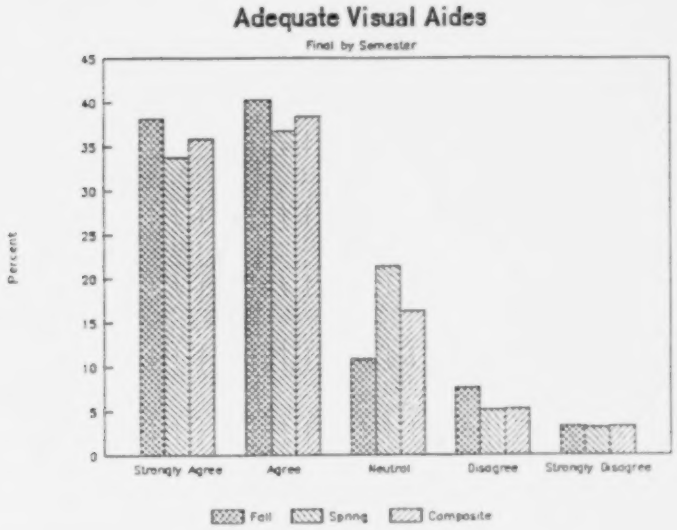





BEST COPY AVAILABLE

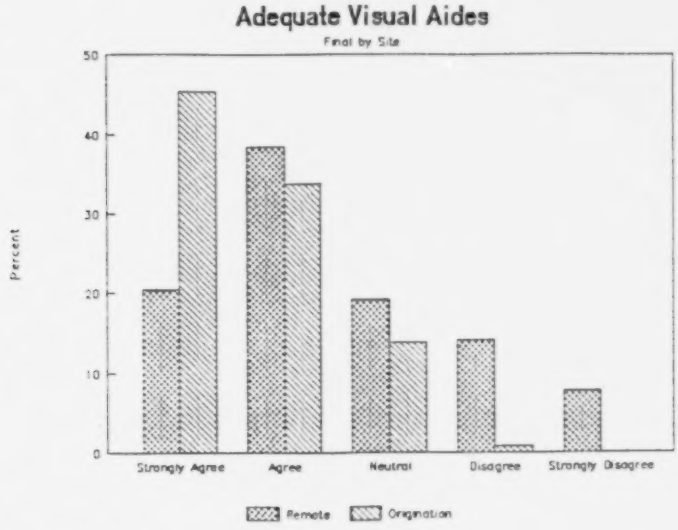
The students were asked to indicate if their instructor uses adequate visual aids. Almost three quarters (74.2%) indicated adequate visual aids were used. Only 8.5% of the respondents felt visual aids were inadequate. For complete results, see Figure 35.

Figure 35



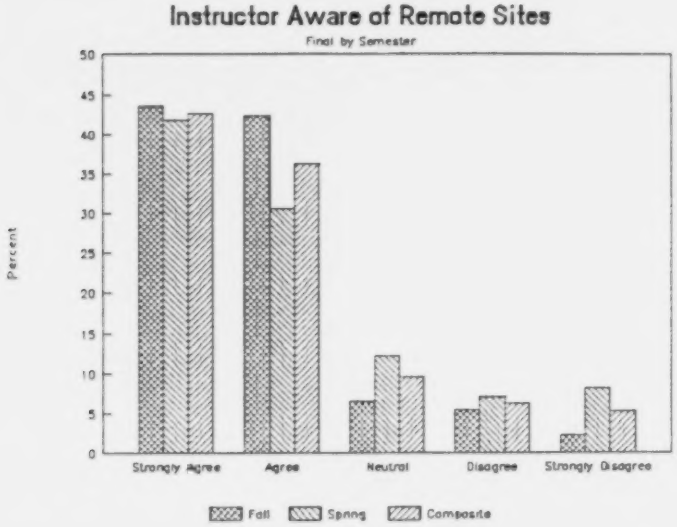

A significant difference is noted in the responses or remote and origination site students regarding the use of adequate visual aides. 79.2% of the origination site students agreed that the instructor used adequate visual aids in contrast to 59.0% agreement from the remote site students. For complete results, see Figure 36.

Figure 36



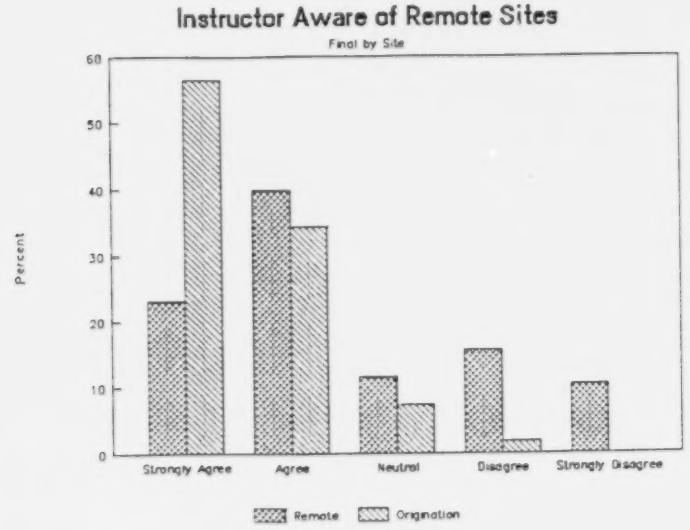
The students were asked to indicate if the instructor is aware of the students at remote sites. 78.9% of the respondents felt the instructor was aware of remote site students. For complete results, see Figure 37.

Figure 37



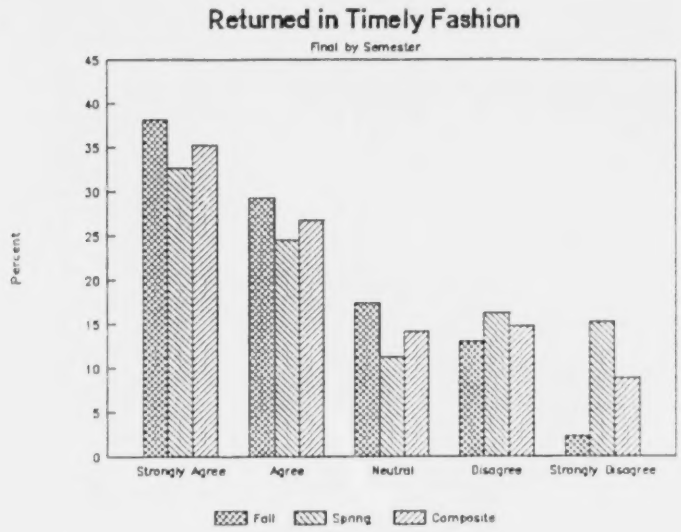

A significant difference is noted in the responses of remote and origination site students regarding instructor awareness of students at remote sites. 90.8% of origination site students agreed that the instructor was aware of remote site students in comparison to 63.8% of remote responses. Complete results are found in Figure 38.

Figure 38



The students were asked to indicate if their assignment and tests were returned in a timely fashion. 62.1% agreed assignments were returned in a timely fashion whereas 23.6% of the respondents were dissatisfied. Dissatisfaction results differ between fall and spring semesters by 16.4 percentage points. The complete results can be found in Figure 39.

Figure 39

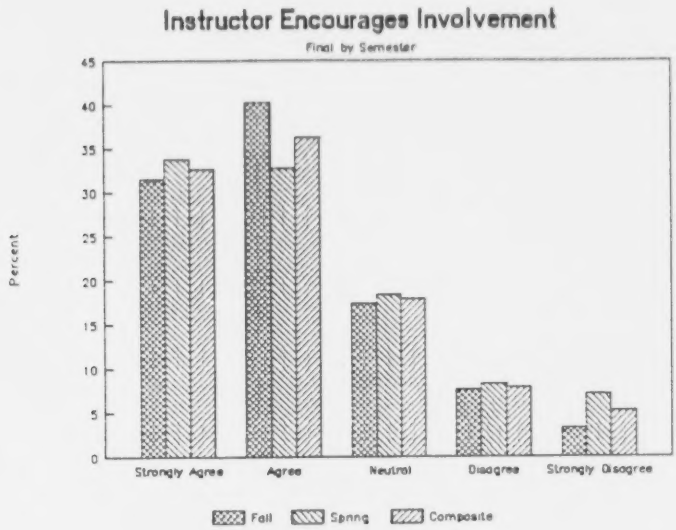



A significant difference is noted in the responses of remote and origination site students regarding the timely return of assignments and tests. 76.8% of origination site students agreed that assignments were returned in a timely fashion; only 41.0% of remote site students agreed. For complete results, see Figure 40.

Figure 40

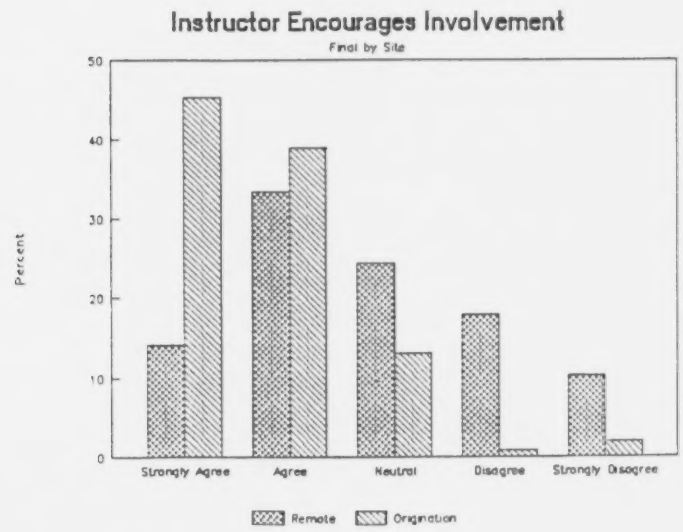
The students were asked to indicate if their TIE instructor encourages them to become involved in class activities. 68.9% of the respondents indicated they were encouraged to participate. For complete results, see Figure 41.

Figure 41



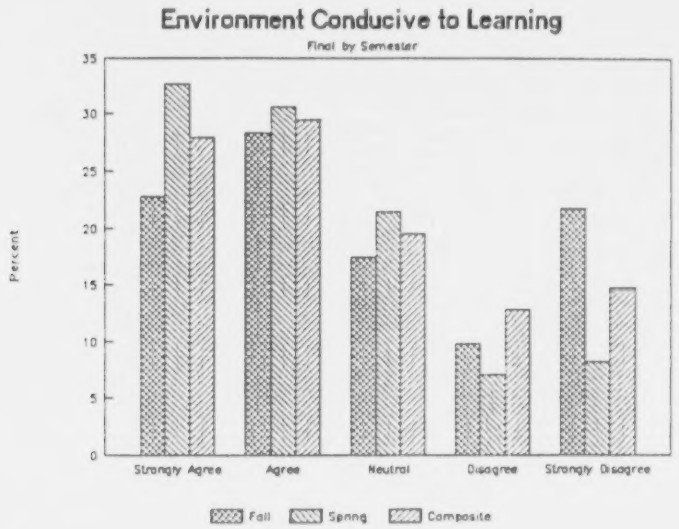

A significant difference is noted in the responses of remote and origination site students regarding instructor encouragement for student involvement. 83.3% of origination site students agreed that the instructor encouraged them to be involved compared to 47.4% of remote site students. For complete results, see Figure 42.

Figure 42



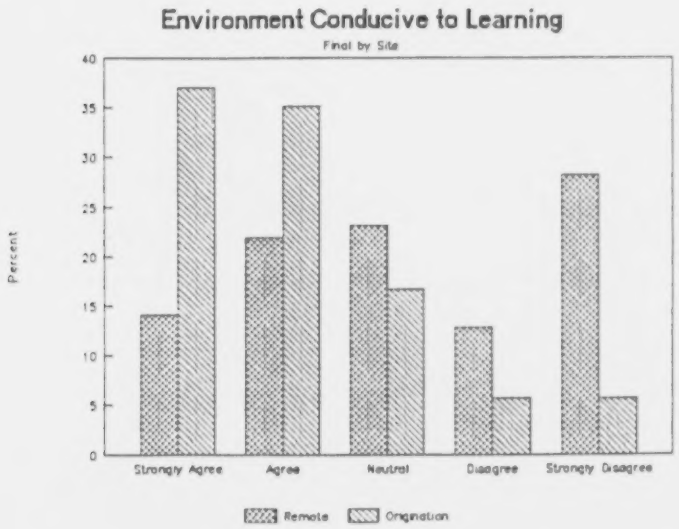
The respondents were asked to indicate if the classroom environment was conducive to learning. 57.4% of the respondents agreed that the classroom environment was conducive to learning while 23% said it was not. A discrepancy between fall and spring responses is evident in this item. 31.5% of the fall semester respondents and 15.3% of the spring respondents indicated the classroom environment was not conducive to learning. For complete results, see Figure 43.

Figure 43



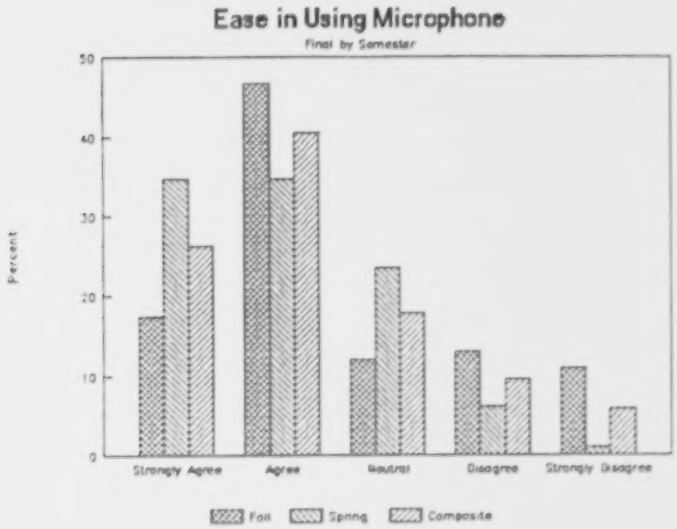

A significant difference is seen between remote and origination site student responses regarding classroom environment. 72.2% of the origination site students agreed that the classroom environment was conducive to learning compared with 35.9% of remote site students. For complete results, see Figure 44.

Figure 44



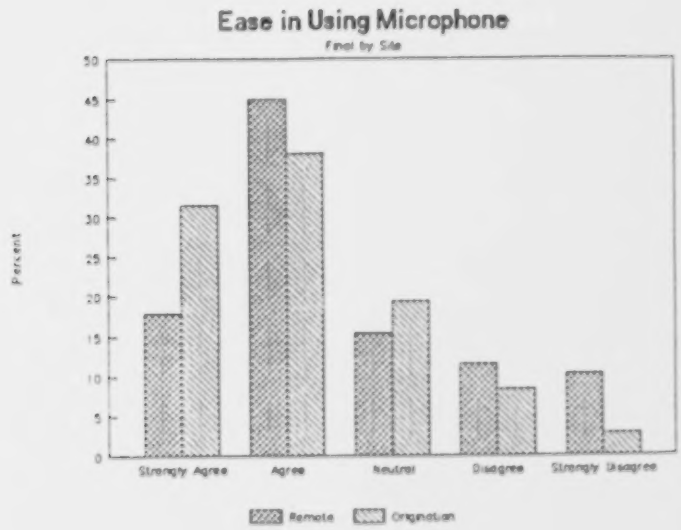
The students were asked if they felt at ease using their microphone to get the instructor's attention. 66.8% indicated they felt at ease using the microphones; 15.3% of the respondents did not feel at ease using the microphones. For complete results, see Figure 45.

Figure 45




No significant difference was found in the origination and remote students responses to ease in using the microphone. For complete results, see Figure 46.

Figure 46

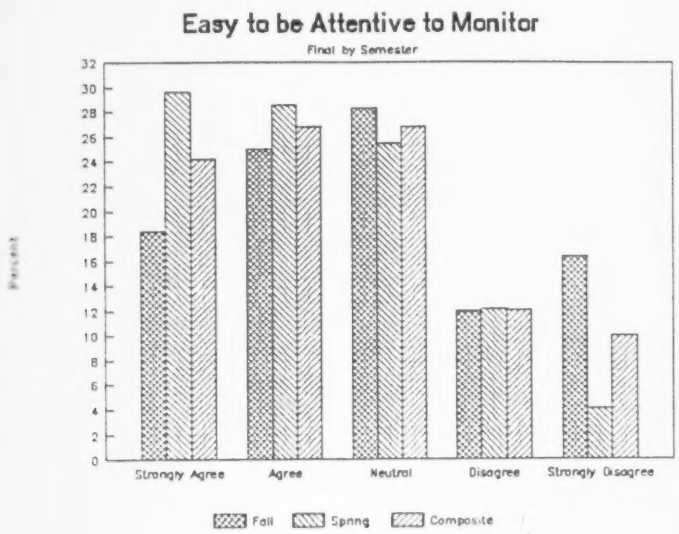





BEST COPY AVAILABLE

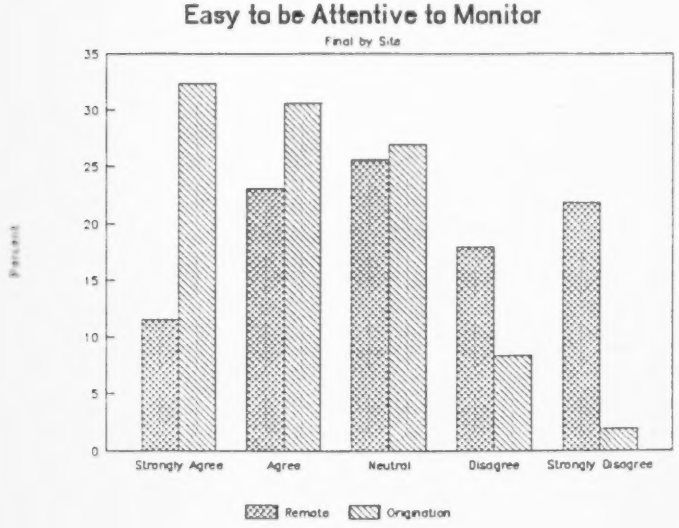
The students were asked if it was easy to be attentive to the instructor on the TV monitor. 61% of the respondents agreed it was easy to be attentive to the instructor on the monitor; 22.1% indicated it was not. For complete results, see Figure 47.

Figure 47



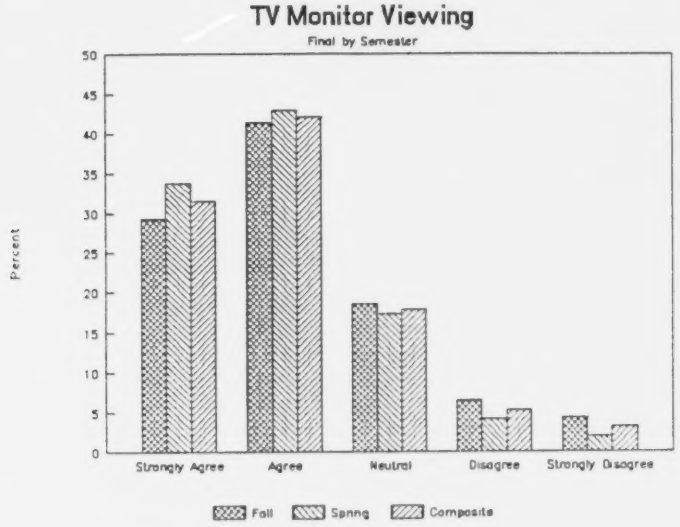

A significant difference in the answers of remote and origination site students regarding ease of attentiveness to the TV monitor. 63.0% of the origination site students agreed that it was easy to be attentive to the TV monitor compared to 34.6% of remote site students. For complete results, see Figure 48.

Figure 48



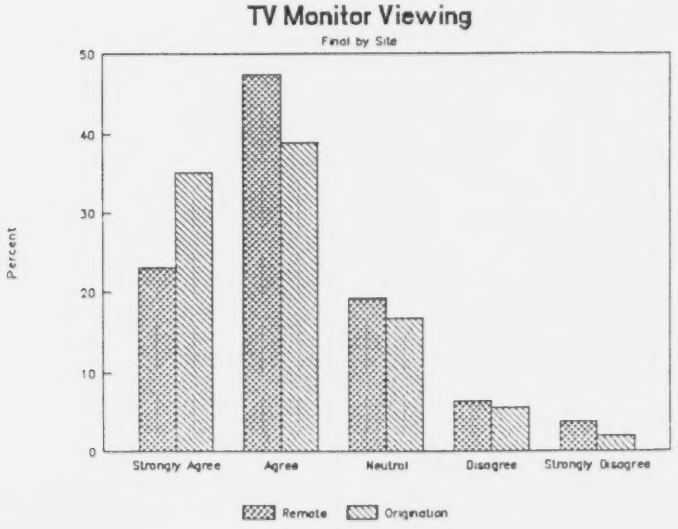
The students were asked to indicate if the TV monitor in their classroom was adequate for viewing the instructor. Almost three quarters (73.7%) agreed the TV monitors were adequate for viewing. Less than nine percent (8.5%) disagreed with the adequacy of monitor viewing. For complete results, see Figure 49.

Figure 49



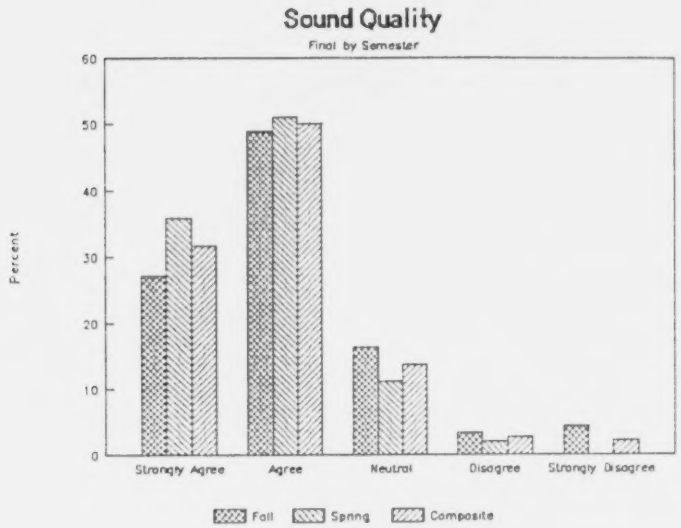

There was no significant difference in responses between remote and origination site students regarding the adequacy of the TV monitor for viewing the instructor. For complete results, see Figure 50.

Figure 50



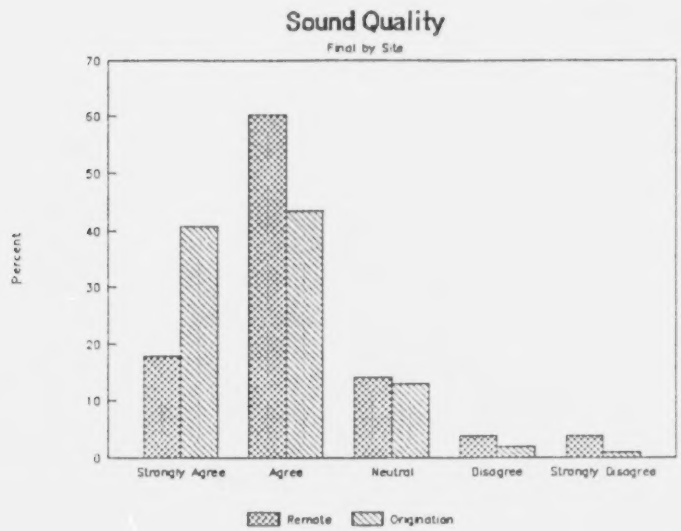
The students were asked to indicate if the sound quality of the TIE system was adequate. 81.6% of the respondents indicated the sound quality was adequate. For complete results, see Figure 51.

Figure 51



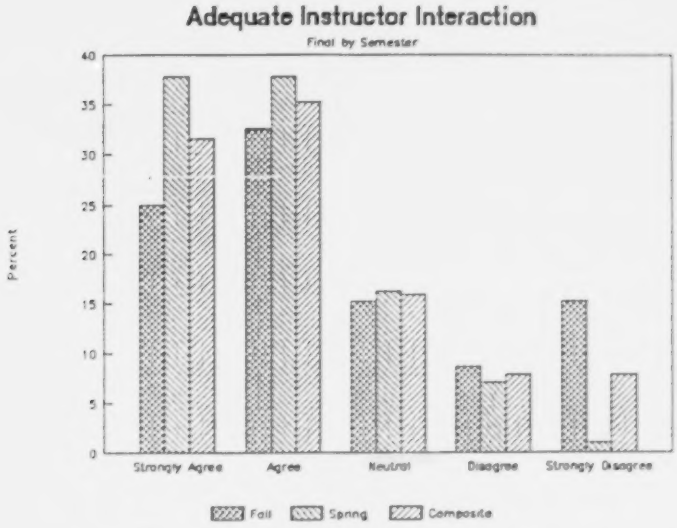

There was no significant difference in student responses regarding sound quality. For complete results, see Figure 52.

Figure 52



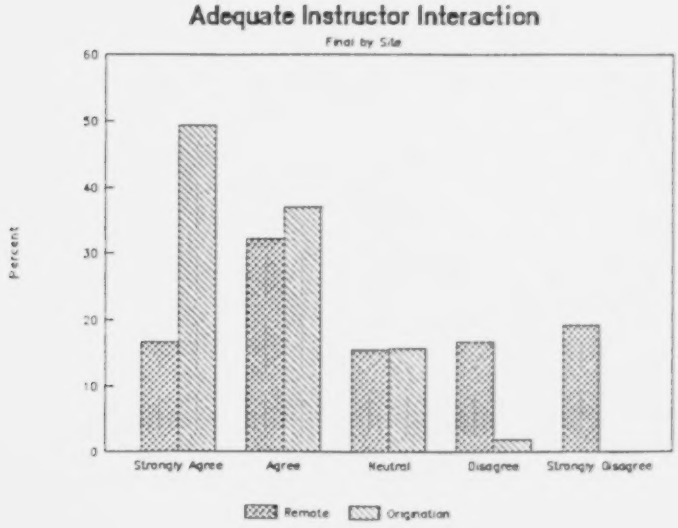
The respondents were asked to indicate if the TIE system allowed them adequate interaction with their instructor. Two-thirds (66.9%) of the respondents indicated the availability of adequate interaction. A noted difference can be found in responses from the fall and spring semesters. Adequate interaction was indicated by 57.6% and 75.6% respectively. This is an 18% percentage point difference. For complete results, see Figure 53.

Figure 53



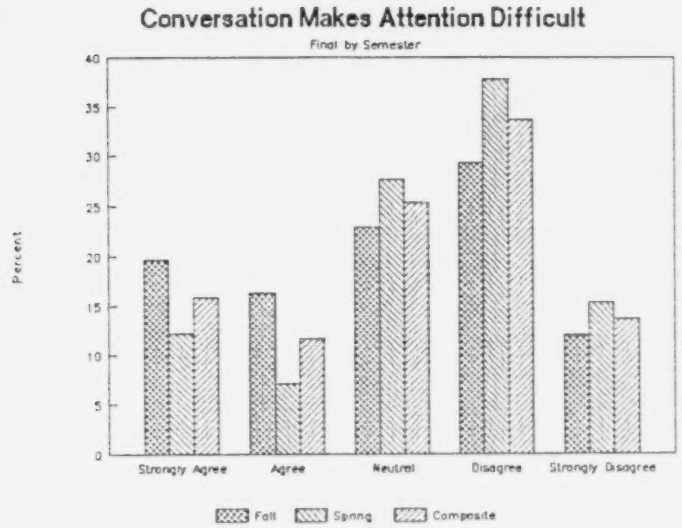

A significant difference is found between remote and origination site student responses regarding adequate instructor interaction. 82.4% of the origination site students agreed that the system allowed them adequate interaction with the instructor; 48.8% of remote site students agreed. For complete results, see Figure 54.

Figure 54



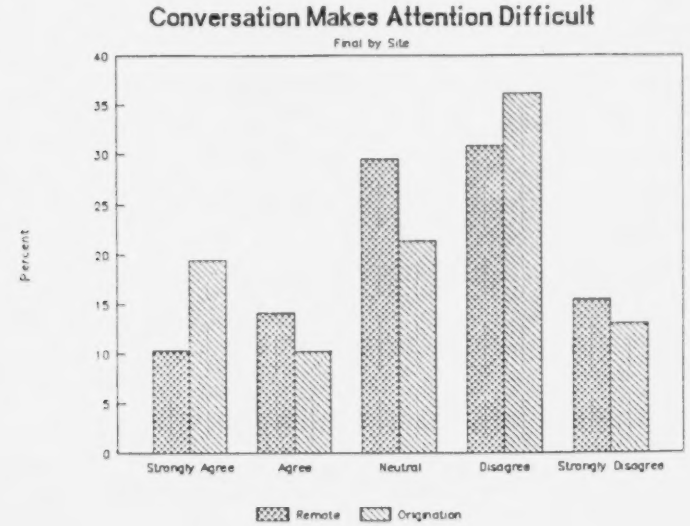
The students were asked to indicate if the conversation level of the classroom makes it difficult to pay attention to the TV monitor. 27.4% of the respondents indicated that conversation levels cause difficulty. A noticeable variation in response can be seen between the fall and spring semester. 35.9% of the fall semester respondents indicated conversation level was a problem compared to 19.3% for spring semester. For complete results, see Figure 55.

Figure 55



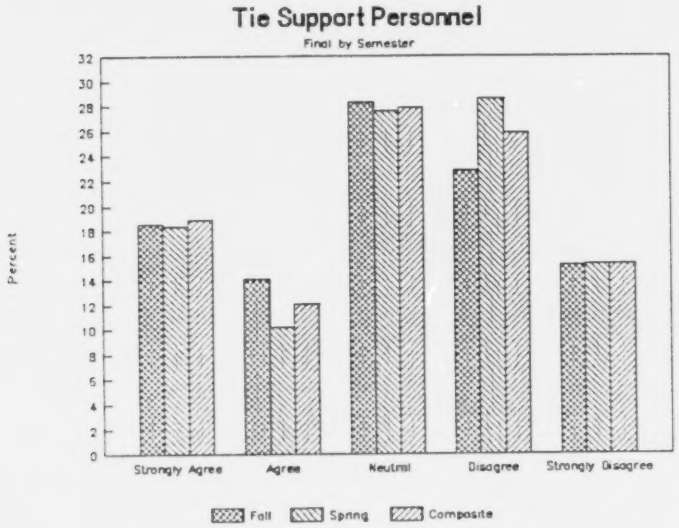

There was no significant difference in remote and origination site student responses regarding the conversation level in classrooms. For complete results, see Figure 56.

Figure 56



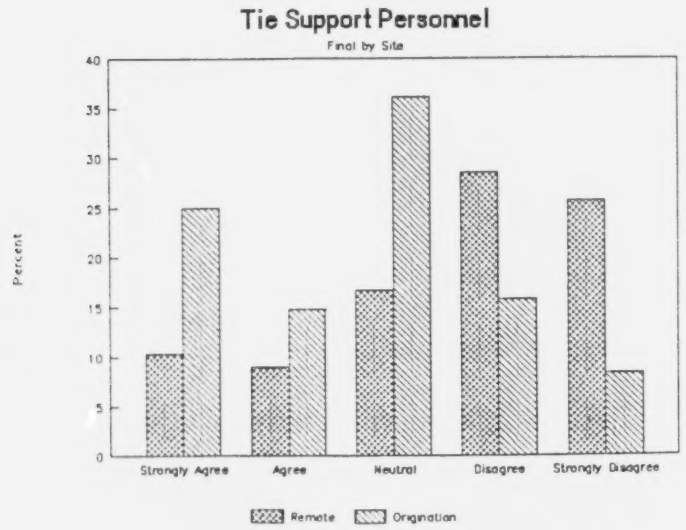
Respondents were asked to indicate if TIE support personnel should remain in the classroom through the class period. Nearly one third (31.0%) of the respondents favored this proposal; 41.1% disagreed and 27.9% were neutral. For complete results, see Figure 57.

Figure 57



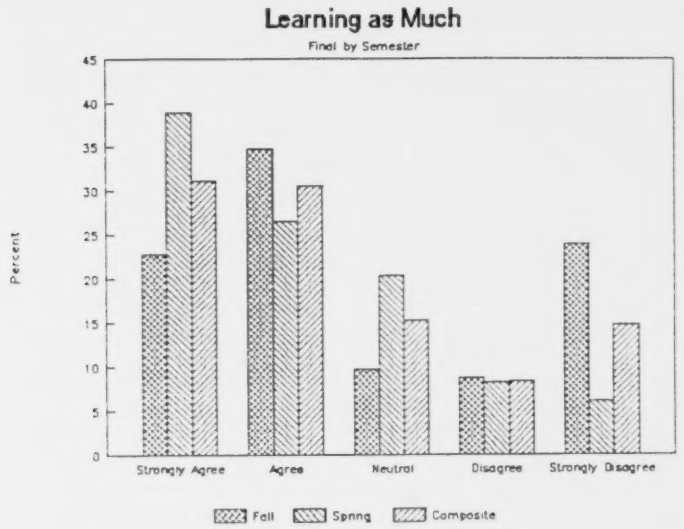

A significant difference existed between the responses of origination and remote site students on the issue of TIE personnel. 39.8% of origination site students agreed that a TIE support person should remain in the classroom the entire time; 19.3% of remote site students agreed. For complete results, see Figure 58.

Figure 58



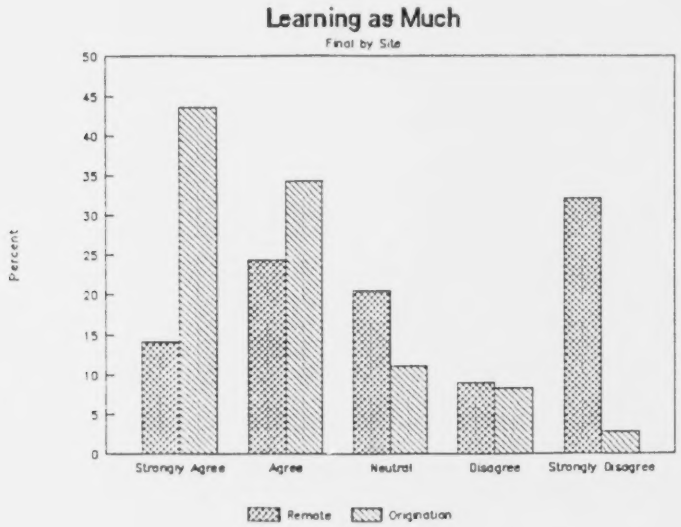
When the respondents were asked if they were learning as much in their TIE course as they would in a "regular" course, 61.6% indicated yes while 23.1% indicated no. Results between the fall and spring respondents show a difference. 57.6% of the fall respondents felt they were learning as much compared with 65.3% of the spring respondents. 32.6% of the fall respondents felt they were not learning as much compared with only 14.3% of the spring respondents. For complete results, see Figure 59.

Figure 59



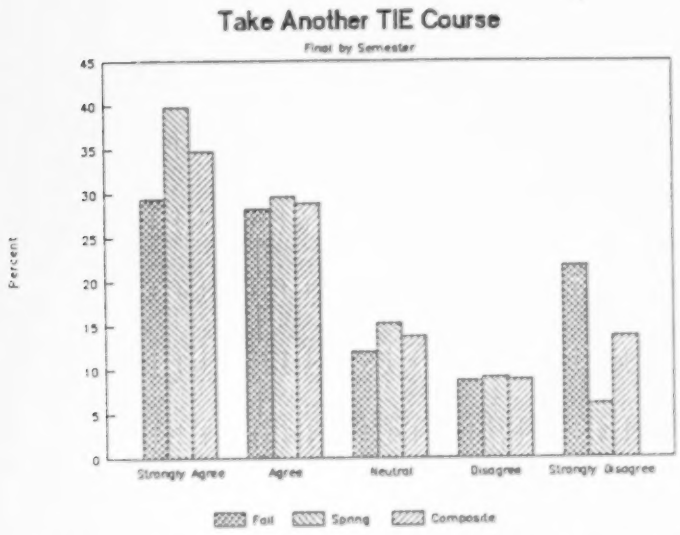

A significant difference is noted between responses of remote and origination site students on if they were learning as much in this course as in a "regular" course. Only 11.1% of origination site students felt they were **not** learning as much compared to 41.1% of remote site students. For complete results, see Figure 60.

Figure 60



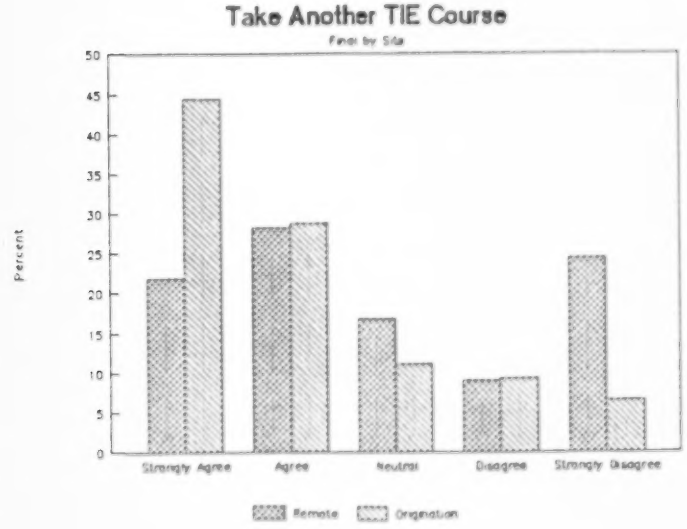
When asked if they would take another TIE course. 63.6% of the respondents indicated they would. 22.6% of the respondents indicated they would not take another TIE course. For complete results, see Figure 61.

Figure 61




A significant difference was noted between responses of remote and origination site students regarding the taking of another TIE course. 15.8% of the origination site students responded they would **not** take another TIE course compared to 33.4% of the remote site students. For complete results, see Figure 62.

Figure 62



## STUDENT DEMOGRAPHICS

The respondents were asked to provide the following demographic information:

- Age
- Gender
- Enrollment status

This information can be found in Figures 63, 64, and 65.

Figure 63

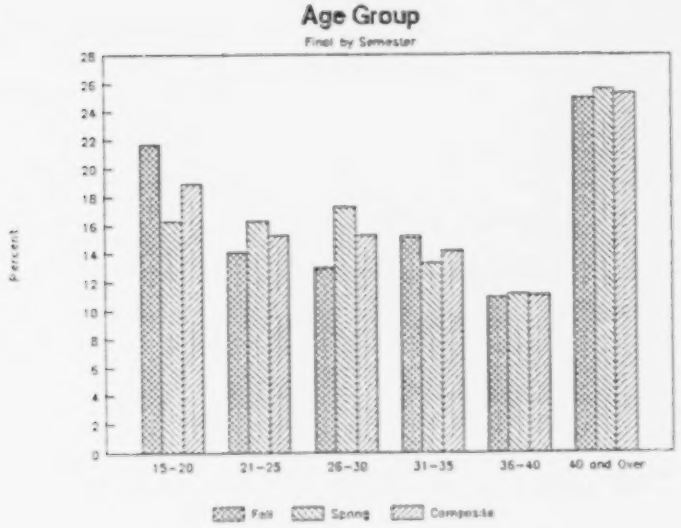



Figure 64

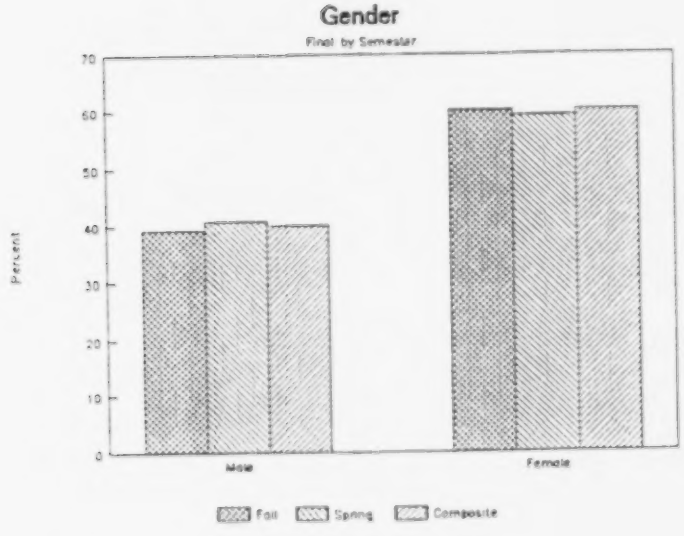
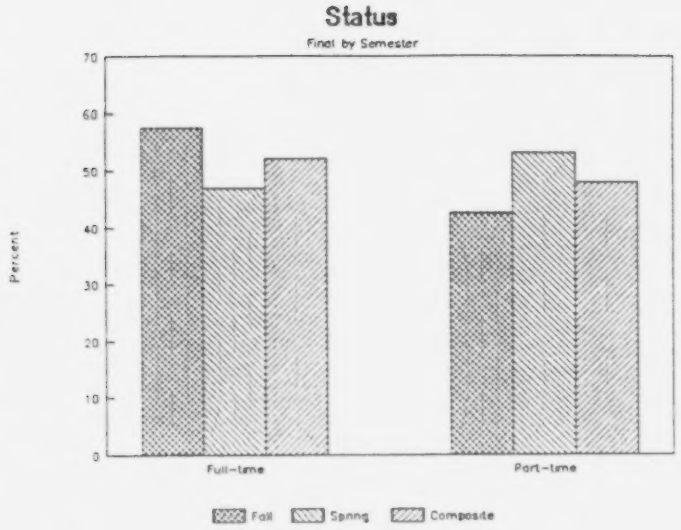
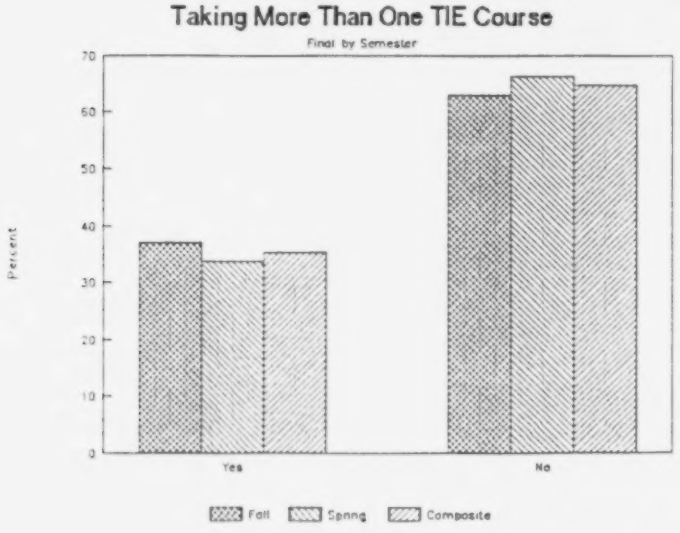


Figure 65




The respondents were also asked to indicate if they were presently taking more than one TIE course; if they were planning on pursuing a certificate, diploma or degree at the Eastern Iowa Community College District and if their TIE course was required for their program. Over one third (35.3%) of the respondents were taking more than one TIE course. 57.9% of the respondents were planning on pursuing a certificate, diploma or degree from EICCD and over three-quarters (75.8%) of the respondents indicated that their TIE course was required for their program. For complete results, see Figures 66, 67, and 68.

Figure 66






BEST COPY AVAILABLE

Figure 67

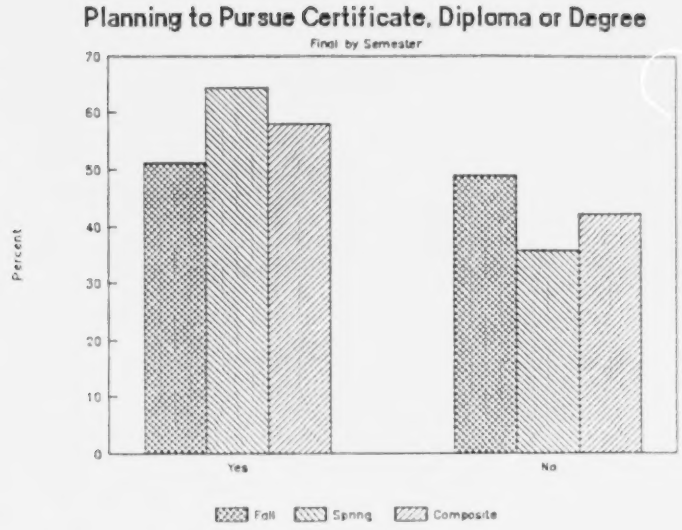
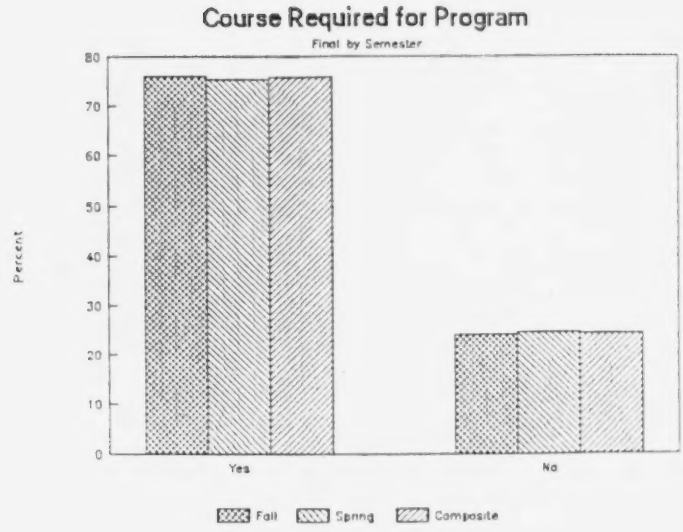



Figure 68



## EVALUATION OF STUDENTS WHO HAVE WITHDRAWN

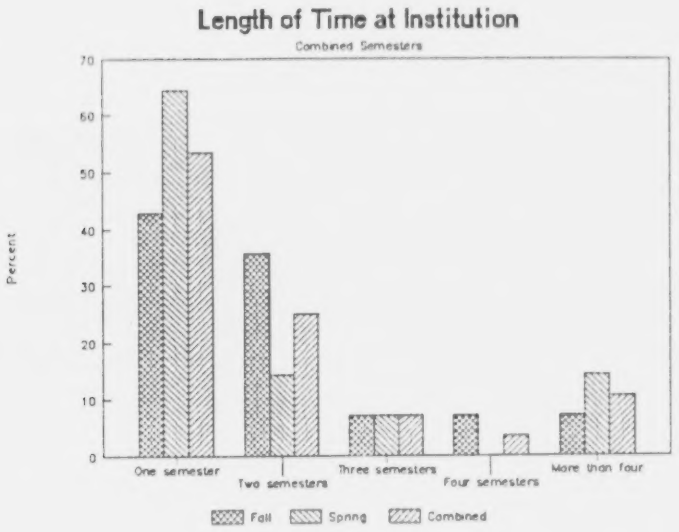
A telephone survey was developed to survey those EICCD students who had enrolled in TIE courses but had withdrawn from the course before its completion.

For the fall 89 semester, 24 EICCD students had withdrawn from TIE courses. These individuals were contacted by phone in January to determine their reasons for withdrawal. 14 of the 24 withdrawn students were able to be contacted by phone; this represents 58% of the population polled.

For the spring 90 semester, 23 EICCD students had withdrawn from TIE courses. These individuals were contacted by phone in June to determine their reasons for withdrawal. 14 of the 23 withdrawn students were able to be contacted by phone; this represents 61% of the population polled. They survey instrument can be found in Appendix C.

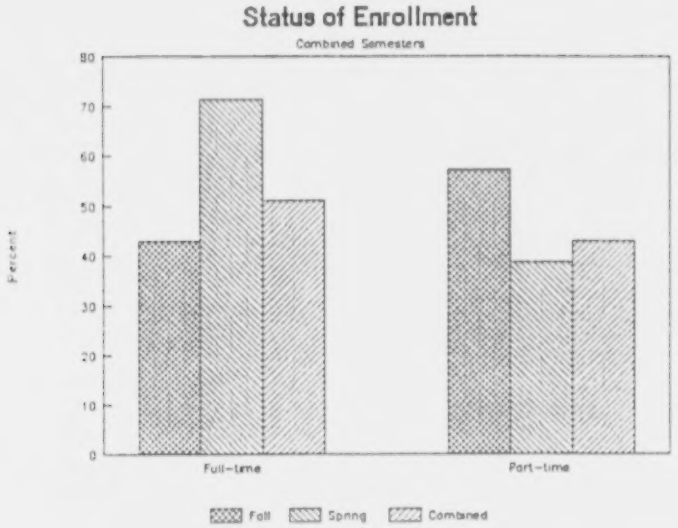
The students were asked how long they had been a student at the college at the time of their withdrawal from their TIE course. More than half of the respondents were in their first semester of classes at the college when they dropped their TIE course. For complete results, see Figure 69.

Figure 69



The respondents were then asked their status of enrollment. More than half (57.1%) of the respondents indicated their status as full time. For complete results, see Figure 70.

Figure 70

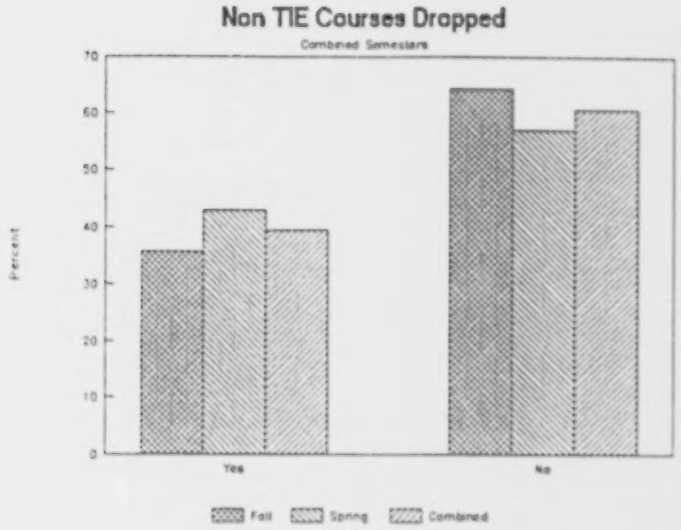



The respondents were asked to indicate the number of courses they have been enrolled in that were offered over the TIE system. The number of courses indicated, in both fall and spring ranged from one to eight. For 64.3% of the respondents (fall and spring), this was their first enrollment in a course delivered over the TIE system.

The respondents were asked to indicate the number of courses they have completed over the TIE system. The number of courses indicated ranged from zero to eight. Three quarters (75%) of the respondents (fall and spring) had not completed a course delivered over the TIE system. There were 3 students (10.7% of the population) who had previously withdrawn from a course delivered over the TIE system.

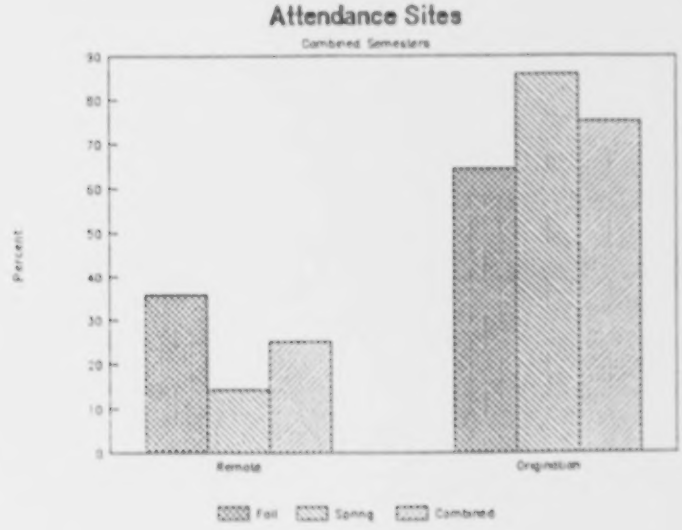
The students were asked if they dropped any other non-TIE related courses during the same semester as they withdrew from their TIE course. Almost two thirds (60.7%) withdrew only from their TIE course in the semester in question. For complete results, see Figure 71.

Figure 71



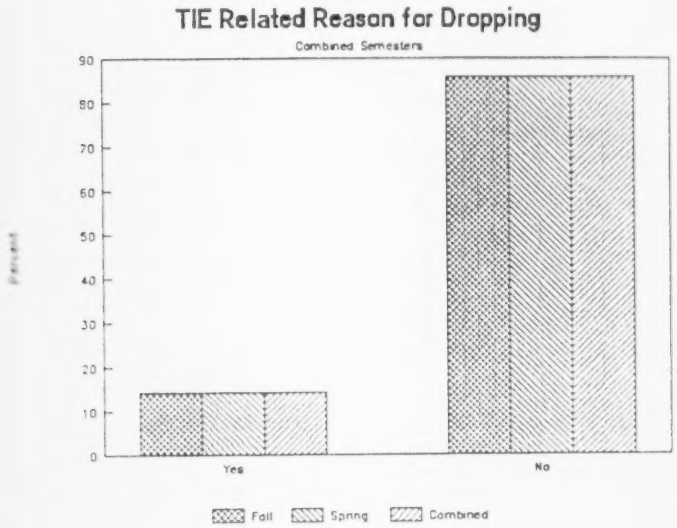

The students were asked to indicate if they had attended the remote or origination sites. Three quarters (75%) of the respondents attended the origination sites. For complete results, see Figure 72.

Figure 72



The students were asked if their reason for withdrawing from the class was influenced by the fact that it was delivered over the TIE system. The majority of respondents (85.7%) did not withdraw from their course due to the fact it was delivered over the TIE system. For complete results, see Figure 73.

Figure 73




Of the four respondents who indicated their reason for dropping the class was TIE related; two respondents indicated instructional problems, one respondent indicated feeling uncomfortable with the cameras and the fourth individual said he did not like the fact that the instructor was not physically present in the classroom and that fellow students at the remote sites were disruptive.

The locations of the four individuals were evenly split; two at remote sites and two at origination sites.

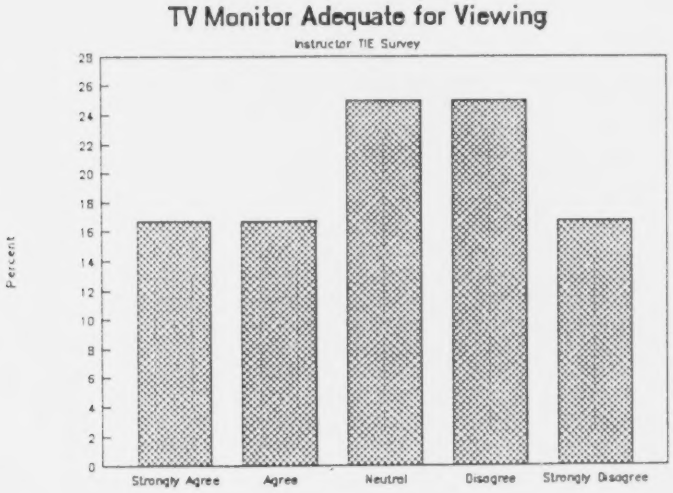
When asked if they would take another class over the TIE system, one indicated yes, one indicated no, and two of the respondents were uncertain.

## INSTRUCTOR EVALUATION

The instructor evaluation was developed by the project team and mailed directly to the home of instructors who had recently taught on the system (last two years). This included instructors from the EICCD, Marycrest College and the University of Iowa. The survey was mailed in late May to the homes of 14 TIE instructors. A cover letter and return envelope accompanied the survey. A total of 12 surveys were returned; this represents 85% of the total population polled.

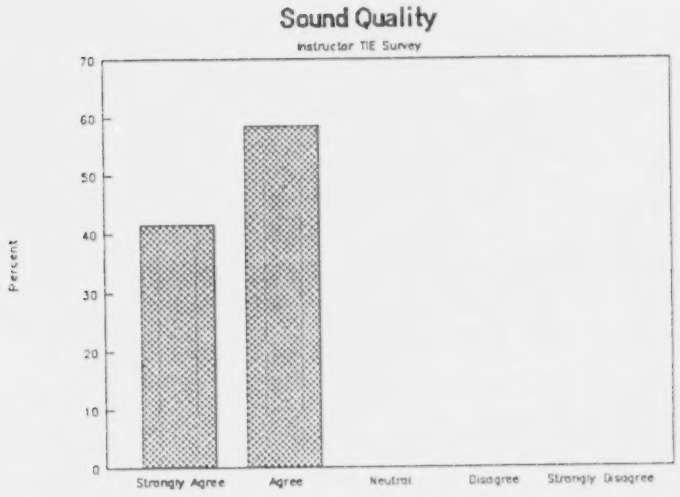
33.4% of the instructors polled agreed that the TV monitor in the classroom was adequate for viewing the students; 41.7% of the respondents felt the monitors were not adequate. Suggestions made regarding the monitors included having the capability to zoom the camera in on students who were responding to a question. For complete results, see Figure 74.

Figure 74



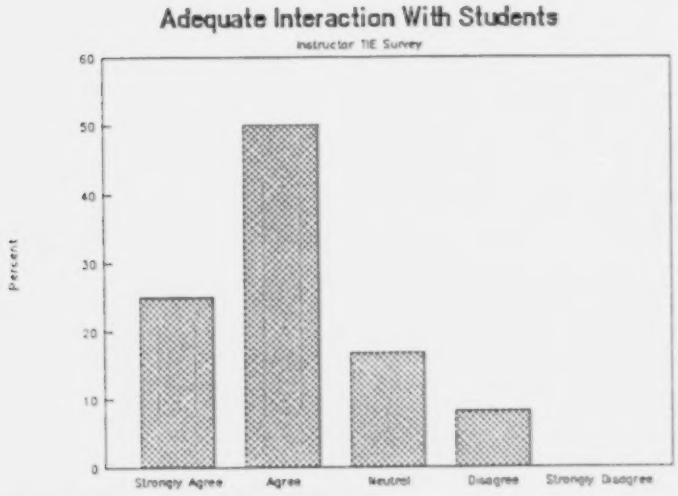
All of the instructors polled agreed that the sound quality of the TIE system was adequate. For complete results, see Figure 75.

Figure 75



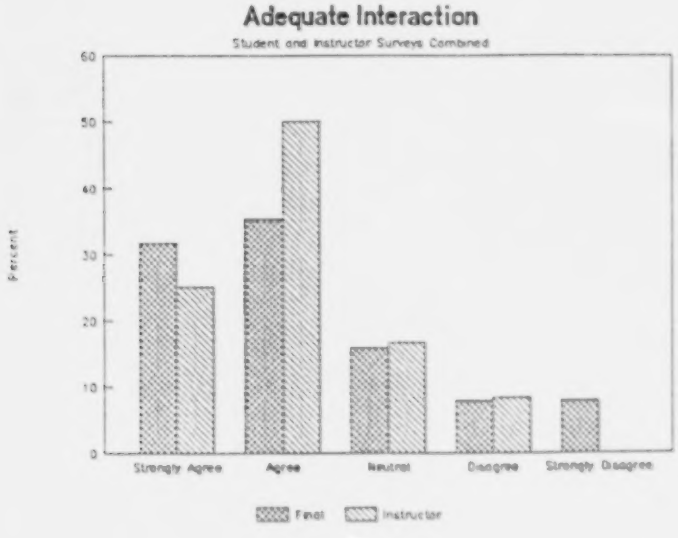
75% of the respondents agreed that the TIE System allowed them adequate interaction with the students. Only one instructor (8.3%) did not feel adequate interaction was afforded by the TIE system. For complete results, see Figure 76.

Figure 76



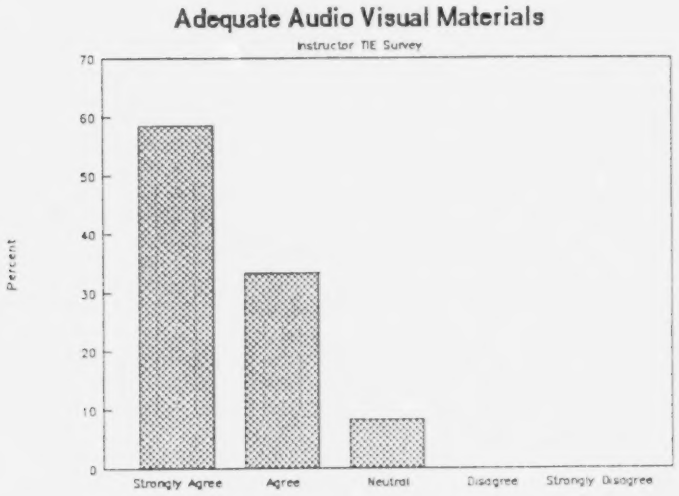

In contrast to the students' perception of interaction, more instructors (75%) felt there was adequate interaction compared with the students (66.9%). For complete results, see Figure 77.

Figure 77



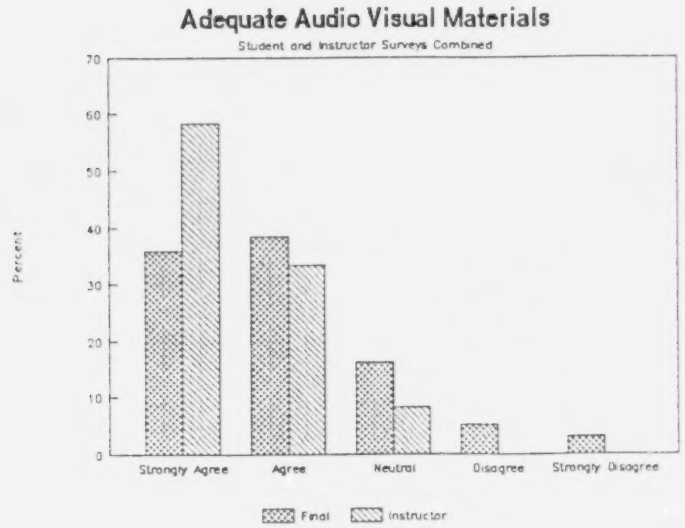
91.7% of the respondents indicated that the TIE system allows them to adequately utilize audio-visual materials. For complete results, see Figure 78.

Figure 78



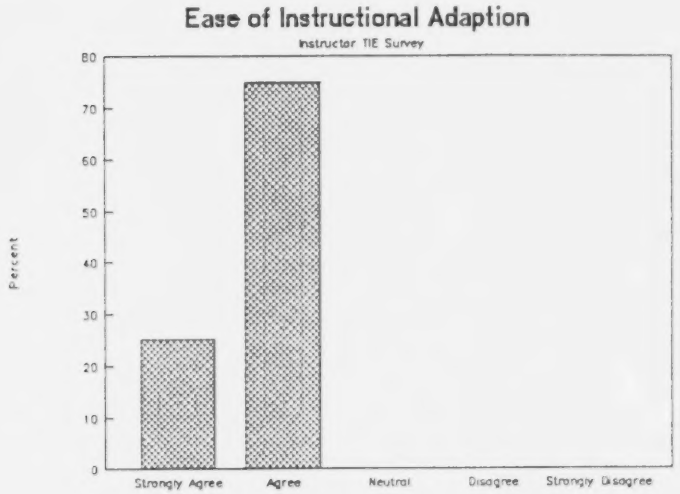

In comparison with the student responses, instructors feel the system allows them adequate utilization of audio-visuals (91.7%) compared to the students' agreement of 74.2%. See Figure 79.

Figure 79



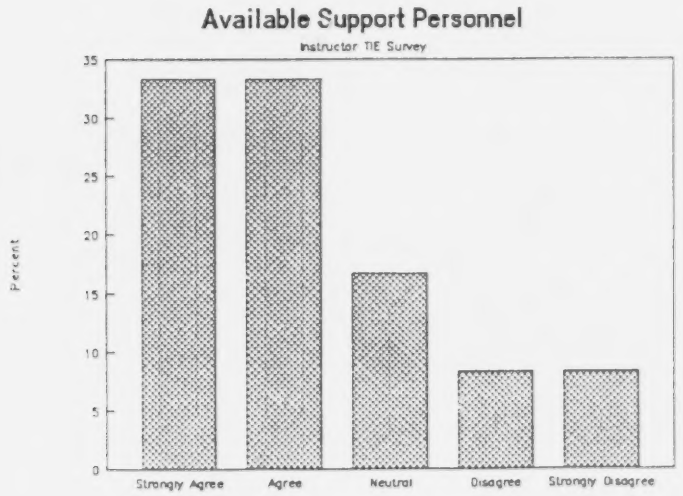
Two thirds (66.6%) of the respondents indicated agreement that TIE support personnel were available and able to meet their needs. 16.6% of the respondents disagreed. For complete results, see Figure 80.

Figure 80



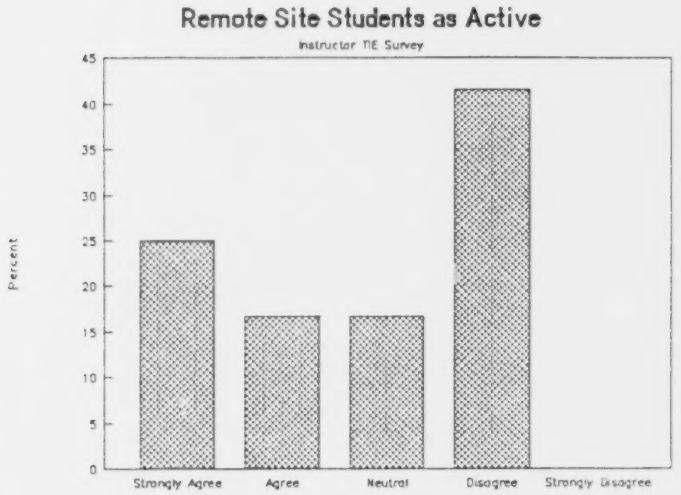

All the respondents agreed they were able to adapt their instruction for delivery over the TIE system with relative ease. For complete results, see Figure 81.

Figure 81



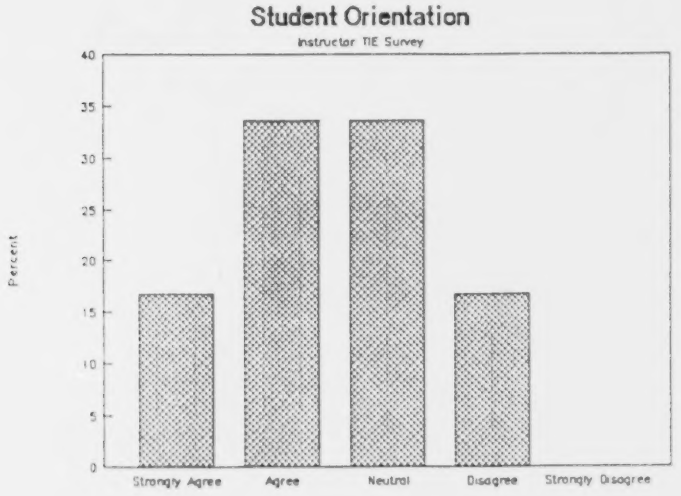
The instructors were evenly divided over the statement that remote site students participate in class as actively as origination site students. 41.7% of the instructors agreed remote site students were as active; 41.7% disagreed. For complete results, see Figure 82.

Figure 82



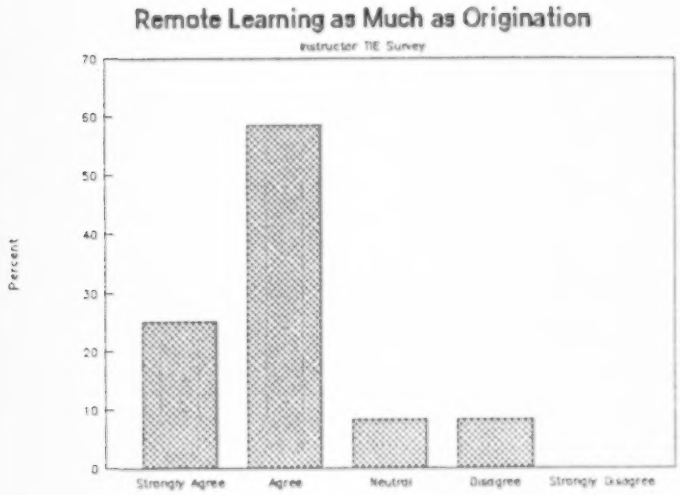

50.3% of the instructors agreed that student orientation to the TIE system was adequate; 16.7% disagreed. For complete results, see Figure 83.

Figure 83



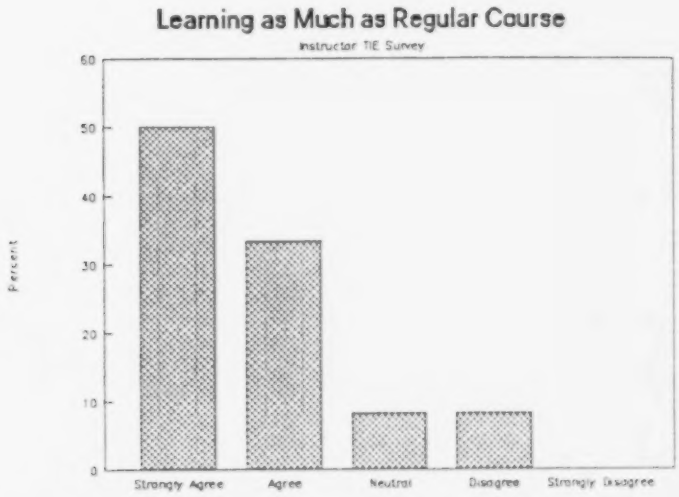
83.4% of the instructors agreed that the remote site students are learning as much as the origination site students; 8.3% disagree. For complete results, see Figure 84.

Figure 84



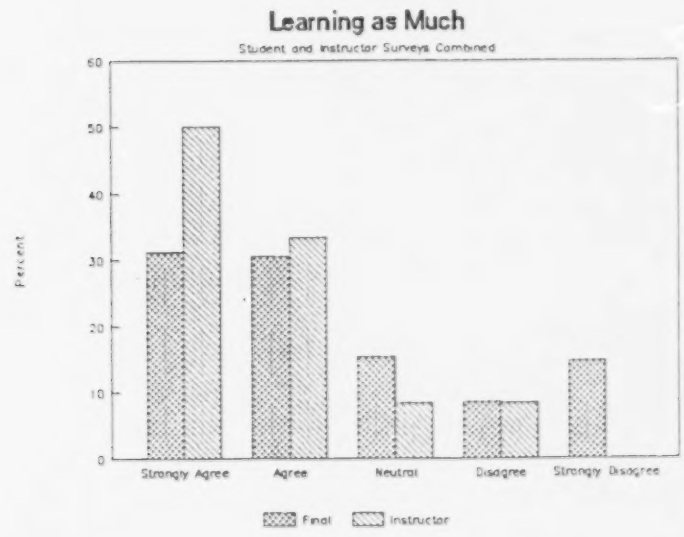
83.3% of the instructors agreed that students are learning as much in a TIE course as they would in a regular course; 8.3% disagreed. For complete results, see Figure 85.

Figure 85




There is a significant difference between instructor and student perception regarding if students are learning as much as they would in a regular course. 83.3% of the instructors feel student are learning as much compared to 61.6% as the students. See Figure 86.

Figure 86



## INSTRUCTORS' IDENTIFIED BENEFITS OF THE SYSTEM

Instructors were asked to indicate benefits they have experienced while teaching over the TIE system. Examples of these included:

Instructionally:

> Being able to offer a low-enrollment class.
>
> I feel we had more class participation than in a regular classroom.
>
> Use of multiple technologies.
>
> Excellent for showing visuals. I could use the transparencies that I usually project by putting a white piece of paper behind them. I could also show other things--books, pictures, etc.
>
> So much better for students to be able to see the instructors, guest speakers, etc.

Technically:

> Idiot-proof controls, for the most part.
>
> Utilizing the camera for models also plugging into the computer system.
>
> Able to use a variety of audio-visual aids.
>
> Being able to have multiple sites with instructors in both classes; everyone can see and hear the guest speakers.
>
> It was good to experience a different method of delivery. It fit into the course content beautifully since we were discussing adapting to change.

Other:

> Should help with classes that otherwise might have an enrollment that is too low.
>
> I am encouraged to use new motivational techniques to enhance student participation.
>
> More flexibility in using A/V materials.

## INSTRUCTORS' IDENTIFIED PROBLEMS

Instructors were asked to indicate problems they have experienced while teaching over the TIE system. Example of these included:

Instructionally:

Inability to see student reaction at center with the monitor.

Mobility is limited.

Behavioral problems with students at other campuses.

The lag time in receiving tests.

Have to plan ahead so much that it is more difficult to include items on tests relevant to discussions.

Technically:

Cannot see students in remote sites clearly enough to recognize them.

Some of the time when the right switch isn't thrown on the system.

The position of the viewing monitors needs to be more flexible, rather than fixed.

System down.

Cedar Rapids connection wasn't always real good--some "static" and background noise.

Support Personnel:

A few times support personnel were not to be found. After class a student might wish to ask a question. This is not possible when support people are rushing you.

None! The man who helped me was excellent! Extremely helpful.

Student Related:

It took some time for students to get used to the microphones.

Some difficulty in sending and receiving papers--primarily with regard to tests and papers to grade and return.

## INSTRUCTORS' RECOMMENDATIONS

Instructors were asked to suggest recommendation to enhance instructional delivery utilizing the TIE system. Representative examples included:

> A way to view student faces. More microphones.
>
> Having a remote control to operate the room lights.
>
> Improved inter-campus mail.
>
> We need an instructor on each campus to hold office hours for students.
>
> Any possibility of close-up capability and aiming of front cameras?
>
> Include a telephone in the TIE room.

Respondents were asked to indicate if they traveled to remote sites to visit with remote site students. Two-thirds (66.7%) of the instructors visited remote sites.

## INSTRUCTORS' STAFF DEVELOPMENT

Instructors were then asked if they would like additional staff development on the system. The majority of respondents (83.3%) indicated they did not want additional staff development.

The instructors were asked to indicate what type of staff development they would recommend as particularly beneficial for new instructors on the TIE system. Representative examples included:

> Talk with instructor who had used the system and knows how to teach on it.
>
> Just give them a manual and a bit of time to play and the equipment shouldn't take a person more than 30 minutes.
>
> General instruction on use of the TIE system including audio-visual capabilities.
>
> Anybody qualified to teach a course on TIE should be able to master it in 15 minutes.
>
> I think the booklet and orientation you give is excellent. Might try collecting one color identified page at the beginning or end the steps of getting onto and off of the system.
>
> Going over the system like you did with me was very helpful.

## IV. SUMMARY

### USAGE

The TIE system has shown a progressive increase in usage since its conception, except for the spring 90 semester. Fall 89 semester averaged 42.2 and spring 90 semester averaged 35.97.

### ENROLLMENTS

Enrollments for TIE classes are healthy. The TIE system served 662 students during FY90.

Withdrawal rates are lower in EICCD TIE classes as compared to the average EICCD withdrawal rate. Withdrawal rates are lower in remote sites than in origination sites.

### GPA

For the fall 89 semester, students at the remote sites received grades an average of .21 higher on a 4.0 scale than students at the origination sites.

For the spring 90 semester, students at the remote sites received grades an average of .01 lower on a 4.0 scale than students at the origination sites.

To compare GPAs of remote and origination sites, a t-test was performed using the semester as the unit of analysis. Each class was weighted equally. There is no significant difference between the grades of origination and remote site students.

### STUDENT EVALUATION

The combined student evaluations of the system are positive for both the technical and instructional related questions.

61.6% of the respondents (both origination and remote site students) indicated they felt they were learning as much in their TIE course as they would in a "regular" course.

63.6% of the total respondents indicated they would take another TIE course.

Significant differences are found when breaking out the remote and origination site student responses. The following categories represent areas where the remote site student responses were significantly lower than those of origination site students:

Well organized class
Adequate visual aides
Instructor awareness of remote site students
Timely return of assignments
Instructor encourages involvement
Environment conducive to learning
Easy to be attentive to TV monitor

Adequate interaction
Learning as much
Take another TIE course

## STUDENTS WHO HAVE WITHDRAWN

A telephone survey was developed to assess EICCD students who had enrolled in TIE courses but had withdrawn from the course before its completion.

Three quarters (75%) of the respondents had attended the origination site. One quarter (25%) of the respondents had attended the remote site.

The majority of respondents (85.7%) did not withdraw from their course due to the fact it was delivered over the TIE system.

Of the four respondents who indicated their reason for dropping the class was TIE related, two respondents indicated instructional problems, one respondent indicated feeling uncomfortable with the cameras and the fourth individual said he did not like the fact that the instructor was not physically present in the classroom and that fellow students at the remote sites were disruptive.

## INSTRUCTOR EVALUATION

75% of the respondents agreed that the TIE system allowed them adequate interaction with the students. Only one instructor (8.3%) did not feel adequate interaction was afforded by the TIE system.

In contrast to the students' perception of interaction, more instructors (75%) felt there was adequate interaction compared with the students (66.9%).

All the respondents agreed they were able to adapt their instruction for delivery over the TIE system with relative ease.

The respondents were evenly divided over the statement that remote site students participate in class as actively as origination site students. 41.7% of the instructors agreed remote site students were as active; 41.7% disagreed.

83.4% of the instructors agreed that the remote site students are learning as much as the origination site students; 8.3% disagree.

There is a significant difference between instructor and student perception regarding if students are learning as much as they would in a regular course. 83.3% of the instructors feel students are learning as much compared to 61.6% as the students.

83.3% of the instructors agreed that students are learning as much in a TIE course as they would in a regular course; 8.3% disagreed.

## V. RECOMMENDATIONS

Academically, there is no significant difference between the performance of origination versus remote site students. Learning effectively is taking place gradewise; however, significant differences exist in student satisfaction levels.

More attention needs to be focused on the remote student. Instructors need to be made aware of the discrepancies which exist between remote and origination site student perceptions and encouraged to address these issues.

Suggested activities include:

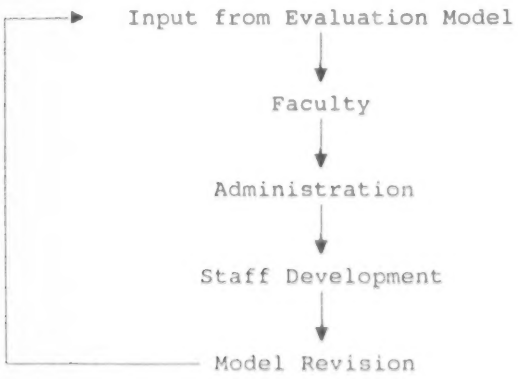
- Increase participation in remote site students
- Increase instructor travel to remote sites
- Provide greater interactivity opportunities in class
- Work to improve turnaround time on assignments (never hand out something to the origination site if it is not available at the remote site)
- Increase the use of effective visual aides

Increased selectivity for instructors who teach on the system is necessary. This may alleviate some of the complications which arose on the system this year.

In general, more attention needs to be directed at remote site students if we expect them to enroll in another televised course. Immediate feedback to instructors from the midterm student evaluation forms may aid in correcting certain classroom situations. Students must also be encouraged to voice their perceptions and feelings to the instructor so that a remedy can readily be implemented.

These suggestions highlight the critical need for a dynamic feedback loop.

Evaluation Model Information Feedback Loop



## VI. BIBLIOGRAPHY


Anandam, Kamala. (1989, October/November). Instructional Technology 15 Years Later: What has Happened, What has not. Community, Technical and Junior College Journal, 60(2), 28-35.

Anderson, Robert M., Jr. (1978, August). Evaluation of Graduate Engineering Education by Television at Purdue University. Proceedings of the IEEE, 66(8).

Barron, Daniel D. (1987, Spring). Faculty and Student Perceptions of Distance Education Using Television. Journal of Education for Library and Information Science, 27(4), 257-271.

Batey, Anne & Cowell, Richard N. Distance Education: An Overview. (Technology Program). Portland OR: Northwest Regional Educational Lab.

Benson, Gregory M. & Hirchen, William. (1987, August). Distance Learning: New Windows for Education. T.H.E. Journal, 63-67.

Bisesi, Michael & Felder, BoDell. (1986, Winter). Interactive Television. New Directions for Higher Education, 56(4), 37-45.

Bogan, E. C. (1984, Fall). The Use of Interactive Video in Teaching Microeconomics. Journal of Economic Education, 15, 329-330.

Bond, Sally L. Telecommunications--Based Distance Learning: A Guide for Local Educators. (Research Report). Research Triangle Park, NC: Southeastern Educational Improvement Lab.

Bruder, Isabelle. (1989). Distance Learning: What's Holding Back This Boundless Delivery System. Electronic Learning, 8(6) 30-35.

Brufee, Kenneth A. CLTV: Collaborative Learning Television. ECTJ, 30(1), 26-40.

Brumbach, Mary Alice. (1976). Fine Tuning, or Everything You Need to Know About Taking This Course on Television. In Our Own Image, An Introduction to Humanities Study Guide. Instructional Television Center, Dallas County Community College District.

Caird, R. (1983, September). Talkback. Media in Education and Development, 16, 108-110.

Childs, G.B. (1966). Review of research in correspondence study. In C.A. Wedemeyer (Ed.). The Brandenburg Memorial Essays. Madison, WI: University of Wisconsin Press.

Chu, Godwin C. & Schramm, Wilber. (1967). Learning from Television: What the Research Says (ERIC Document Reproduction Service, ED 109 985).

Clark, Richard E. (1983, Winter). Reconsidering Research on Learning Media. Review of Educational Research, 53(4), 445-459.

Clark, Richard E. Current Progress and Future Directions for Research in Instructional Technology. ETRED 37(1), 57-66.

Clark, Thomas A. and Verduin, John R. Jr. (1989). Distance Education: Its Effectiveness and Potential Use in Lifelong Learning. Lifelong Learning, 12 (4), 24-27.

Cohen, Peter A., Eberling, Barbara J., & Kulik, James A. A Meta-Analysis of Outcome Studies of Visual-Based Instruction. ECTJ, 29(1), 26-36.

Cross, K.P. (1976). Accent on Learning: Improving Instruction and Reshaping Curriculum. San Francisco, CA: Jossev-Bass.

Daniel, J.S., & Marquis, C. (1979). Interaction and Independence: Getting the Mixture Right. Teaching at a Distance, 14, 29-43.

DeChenne, J. A. (1982-1983). Educating Incarcerated Students Through Technology. International Journal of Instructional Media, 3, 227-230.

Denton, J.J., Clark, F.E., & Rossing, R.G. (1984). An Examination of Instructional Strategies Used With Two-Way Television. Journal of Classroom Interaction, 19, 12-20.

Egan, M. W., McCleary, I. D., Sebastian, J. P., & Lacy, H. (1988). Rural Preservice Teacher Preparation Using Two-Way Interactive Television. Rural Special Education Quarterly, 9(3), 27-33.

Ellis, B. (1985). Educational Teleconferencing. Educational Media International, 27-28.

Ellis, Lee & Mathis, Dan. (1985). College Student Learning from Televised Verse Conventional Classroom Lectures: A Controlled Experiment. Higher Education, 14, 165-173.

Gibson, T. (1987, August). Evaluation of Teaching/Learning at a Distance, Keynote Addresses. Proceedings of the Third Annual Conference on Teaching at a Distance, 1. Madison, WI.

Gibson, T. (1987, August). Evaluation of Teaching/Learning at a Distance, Informational Session Papers and Abstracts. Proceedings of the Third Annual Conference on Teaching at a Distance, 2. Madison, WI.

Gillmore, David. (1977, March/April). Education in American Samoa -- The Way It Was: The Way It Is.

Gross, Richard & English, Phillip C. (1989, October/November). Tele-Visions: Telecommunications Issues for the 1990's. Community, Technical and Junior College Journal, 60(2), 37-41.

Guthrie-Morse, Barbara & Julian, Charles A. (1989, October/November). Telecommunications: The Small College's Tool for Effectiveness. Community, Technical and Junior College Journal, 60(2), 42-45.

Hart, Russ A. (1986, October 22-29). Sunrise to Sunset Lifelong Learning Via Microwave Networks: From a National Heritage. Paper presented at the annual meeting of the American Association for Adult and Continuing Education, Hollywood, FL.

Henderson, R. W. Computer-Video Instruction in Mathematics: Field Test of an Interactive Approach. Journal for Research in Math Education, 16, 207-224.

Hengst, Herbert. (1987, February 14). Talkback Television Instruction and Student Involvement. Paper presented at the Annual Conference of the Association for the Study of Higher Education, San Diego, CA.

Hill, I. (1983, Winter). Interactive TV 23. Action in Teacher Education, 5, 49-52.

Howard, D.C. (1987). Designing learner feedback in distance education. The American Journal of Distance Education, 1 24-39.

Hoy, Mary P. Observation Opportunities for Rural Special Education. Iowa State University.

Hoy, Mary P. Reinforcer Acceptance Values. Iowa State University.

Hoy, Dr. Mary P. & Merkley, Dr. Donna M. Teacher on Television. Iowa State University.

Interactive Video and Its Applications. (1984, December). Media in Education and Development, 17, 182-208.

Johnson, G. R. Interactive Two-way Television: Revisited. Journal of Educational Technology Systems, 13(3), 153-158.

Jones, Doug. Distance Learning in Utah. Teleconference, 60(2), 28-35.

Journal of Communication, (1978, Autumn). Annenberg School of Communication, 3260 Walnut Street, Philadelphia, PA 19104.

Katoaka, H. (1987). Long Distance Language Learning: The Second Year of Televised Japanese. Journal of Educational Techniques and Technologies 20(43), 50.

Keegan, D. (1980) On defining distance education. Distance Education, 1(1) 19-45.

Kesten, Cyril & Burgess, J. Orrison. (1984). A System Evaluation of the University of Regina Television Project. (ERIC Document ED 273 245 100).

Kootz, F.R. (1989, April). Critical Barriers to the Adoption of Instructional Television in Higher Education. Educational Technology, 45-49.

Kressel, Marilyn. (1986, Summer). Higher Education and Telecommunications. Phi Kappa Phi Journal, 66,(3), 4-6.

Liechti, H. N. (1979, May/June). Toward a New Paradigm: Teaching the Future of Telecommunications. Tech Trends, 42-46.

Macken, E. (1976). Home-based education. Washington DC: US Department of Health, Education, and Welfare.

McCleary, I. D., & Egan, M. W. (1989). Program Design and Evaluation: Two-way Interactive Television. The American Journal of Distance Education, 3(1).

Merkely, Donna M. Rural Observation Sites in Teacher Preparation. Iowa State University.

Nolan, E. I. (1984, April). Planning for Telecommunications in the Liberal Arts College. T.H.E. Journal, 82-85.

Oaks, Muriel. (1986, May 16). Interactive Microwave: Extending the Institution to the State. Paper presented to the Joint Northwest Adult Education Association and Pacific Association for Continuing Education, Vancouver, British Columbia, Canada.

Paulet, R. (1987, September). Counseling Distance Learners. Tech Trends, 26-28.

Pease, Pamela S. & Ketchen, Lillian. (1987, March). Meeting the Needs of Rural Special Education in the Information Age: Using TI-IN Networks' Interactive Satellite Based Educational Network. Paper from the Annual National Conference of the American Council on Rural Special Education.

Perin, P. (1983). Communication interactive de groupe et mediatisation. Psychologie-Francaise, 28 289-296.

Perraton, Hilary. (1987, October). The Roles of Theory and Generalization in the Practice of Distance Education: Three Related Systems for Analysing Distance Education. Fer Universitat, Hagen, West Germany.

Rhodes, E. L. & Cerveny, R. P. (1984, Fall). Interactive Video as an Economic Teaching Supplement. Journal of Economic Education, 15, 325-328.

Ritchie, Helen & Newby, Timothy J. (1989, November). Classroom Lecture/Discussion vs. Live Televised Instruction: A Comparison of Effects on Student Performance, Attitude and Interaction. The American Journal of Distance Education, 3.

Roach, K. (1984, December). Interactive Video: The Cardiff Experience. Media in Education and Development, 187-189.

Roberts, Jane M.E. (1987, April 20-24). Instruction from a Distance. Paper presented at the meeting of the American Education Research Association, Washington, DC.

Robinson, R. S. (1985, February/March). No Funds? No Teachers? Share Advanced Courses With Other Schools Via Interactive Cable Television. Tech Trends, 30, 17-19.

Robinson, Rhonda S. & West, Peter C. (1986, January 16-21). Interactive Cable Television: An Evaluation Study. Paper presented at the annual convention of the Association for Educational Communications and Technology, Las Vegas, NV.

Rollyson, C. E. (1984). Quality in Alternative Delivery Systems: Television: The Weekend College Model. North Central Association Quarterly, 59(1), 9-13.

Saba, Farhad & Twitchell, David. (1987, February 26-March 1). Research in Distance Education: A System Modeling Approach. Paper presented at the annual convention of the Association for Educational Communications and Technology, Atlanta, GA.

Salomon, G. (1981) Communication and Education. Beverly Hills, CA: Sage Publications.

Salomon, G., and R.E. Clark. (1977). Reexamining the Methodology of Research on Media and Technology in Education. Review of Educational Research, 47(1), 99-120.

Seamons, R. Alan. (1987). Interactive Video Today. Instructional Innovator, 28, 12-13.

Stone, H.R. (1988) Variations in characteristics and performance between on-campus and video-based off-campus engineering graduate students. Continuing Higher Education, 36(1), 18-23.

Thiogarajan, S. (1978, January). The Loneliness of the Long-Distance Learner. Audiovisual Instruction, 3, 44-45.

Wacker, K. A. (1985 July/August). Cut Telecourse Production Costs Down to Size. Tech Trends, 30(5), 25-27.

Weingand, Darlene E. (1984). Telecommunications Delivery of Education: A Comparison with the Traditional Classroom. Journal of Education for Library and Informaton Science, 25(1) 3-12.

Whittington, Nil. (1987). Is Instructional Television Educationally Effective? A Research Review. The American Journal of Distance Education, 1,(1), 17-27.

Zigerell, J. (1982, February). Consortia -- A Growing Trend in Educational Programming. E-ITV, 43-47.

# VII. APPENDICES

APPENDIX A

**Eastern Iowa Community College District**
**Televised Interactive Education (TIE)**
**Spring 1990 Mid-term**
**Evaluation Form**

The purpose of this survey is to evaluate the effectiveness of the TIE System. *Please answer* the following quesitons on your experience in this semester's course delivered through the TIE System. Please indicate your classroom site and your level of agreement with each statement.

(1) Origination site student: ____
Remote site student: ____

| | | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|
| (2) | 1. My TIE course is being presented in a well-organized way. | 5 | 4 | 3 | 2 | 1 |
| (3) | 2. My instructor has given me instructions as to how to reach him/her outside of class if I need to do so. | 5 | 4 | 3 | 2 | 1 |
| (4) | 3. The instructor uses adequate visual aids. | 5 | 4 | 3 | 2 | 1 |
| (5) | 4. Assignments and tests are returned in a timely fashion. | 5 | 4 | 3 | 2 | 1 |
| (6) | 5. The classroom environment is conducive to learning. | 5 | 4 | 3 | 2 | 1 |
| (7) | 6. I am at ease in using my microphone to get the instructor's attention. | 5 | 4 | 3 | 2 | 1 |
| (8) | 7. The TV monitor in my TIE classroom is adequate for viewing the instructor. | 5 | 4 | 3 | 2 | 1 |
| (9) | 8. The sound quality on the TIE system is adequate. | 5 | 4 | 3 | 2 | 1 |
| (10) | 9. The TIE system allows me adequate interaction with the instructor. | 5 | 4 | 3 | 2 | 1 |
| (11) | 10. TIE support personnel should remain in the classroom throughout the class period. | 5 | 4 | 3 | 2 | 1 |
| (12) | 11. I am learning as much in this TIE course as I would in a regular course. | 5 | 4 | 3 | 2 | 1 |
| (13) | 12. I would take another TIE course. | 5 | 4 | 3 | 2 | 1 |

(14) 13. Comments

_____

_____

APPENDIX B

**Eastern Iowa Community College District**
**Televised Interactive Education (TIE)**
**Spring 1990 Final Evaluation Form**

The purpose of this survey is to evaluate the effectiveness of the TIE System. Please answer the following quesitons on your experience in this semester's course delivered through the TIE System. Please indicate your classroom site and your level of agreement with each statement.

| | | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|
| (1) | Origination site student: ____<br>Remote site student: ____ | | | | | |
| (2) | 1. My TIE course is being presented in a well-organized way. | 5 | 4 | 3 | 2 | 1 |
| (3) | 2. My instructor has given me instructions as to how to reach him/her outside of class if I need to do so. | 5 | 4 | 3 | 2 | 1 |
| (4) | 3. The instructor uses adequate visual aids. | 5 | 4 | 3 | 2 | 1 |
| (5) | 4. The instructor is aware of those students at remote sites during class. | 5 | 4 | 3 | 2 | 1 |
| (6) | 5. Assignments and tests are returned in a timely fashion. | 5 | 4 | 3 | 2 | 1 |
| (7) | 6. My TIE instructor encourages me to become involved in class activities. | 5 | 4 | 3 | 2 | 1 |
| (8) | 7. The classroom environment is conducive to learning. | 5 | 4 | 3 | 2 | 1 |
| (9) | 8. I am at ease in using my microphone to get the instructor's attention. | 5 | 4 | 3 | 2 | 1 |
| (10) | 9. It is easy to be attentive to the instructor on the TV monitor. | 5 | 4 | 3 | 2 | 1 |
| (11) | 10. The TV monitor in my TIE classroom is adequate for viewing the instructor. | 5 | 4 | 3 | 2 | 1 |
| (12) | 11. The sound quality on the TIE system is adequate. | 5 | 4 | 3 | 2 | 1 |
| (13) | 12. The TIE system allows me adequate interaction with the instructor. | 5 | 4 | 3 | 2 | 1 |
| (14) | 13. The conversation level of the classroom makes it difficult to pay attention to the TV monitor. | 5 | 4 | 3 | 2 | 1 |
| (15) | 14. TIE support personnel should remain in the classroom throughout the class period. | 5 | 4 | 3 | 2 | 1 |
| (16) | 15. I am learning as much in this TIE course as I would in a regular course. | 5 | 4 | 3 | 2 | 1 |
| (17) | 16. I would take another TIE course. | 5 | 4 | 3 | 2 | 1 |

Please provide the following information in order to help the Eastern Iowa Community College District understand the needs of students enrolled in TIE courses.

(18) 17. Please indicate your current age group.
1. 15-20 yrs
2. 21-25 yrs
3. 26-30 yrs
4. 31-35 yrs
5. 36-40 yrs
6. 40 yrs or over

(19) 18. Please indicate your gender.
1. Male
2. Female

(20) 19. Please indicate your student status
1. Full-time
2. Part-time

(21) 20. Are you taking more than one TIE course this semester?
1. Yes
2. No

(22) 21. Are you planning to pursue a certificate, diploma, or degree at the Eastern Iowa Community College District?
1. Yes
2. No

(23) 22. Is this course required for your program?
1. Yes
2. No

(24) 23. The one or two things I like best about taking a course on TIE are:

(25) 24. The one or two improvements I would suggest to make the system work best for me are:

(26) 25. One or two things my instructor does (or should do) to help me feel a part of the class are:

(27) 26. One or two services I would like Eastern Iowa Community College District to provide to students located at distant sites are:

(28) 27. Any other comments about TIE?

APPENDIX C

**Eastern Iowa Community College District**
**Televised Interactive Education (TIE)**
**Telephone Survey of Student Withdrawl From Courses**

Hello _____, my name is _____ and I work for the Eastern Iowa Community College District. We are currently evaluating our televised interactive education system and our records show that you were enrolled in a TIE course last semester and dropped that course. We are contacting all students who have withdrawn from TIE courses to determine their reasons for withdrawal. All responses will be kept in confidence. Do you have a few minutes to answer some questions?

1. Yes
2. No ⟶ When would be a good time for me to call back?

_____

_____

We appreciate your participation in this process.

When you withdrew from your TIE course last semester, how long had you been a student at (CCC, SCC, MCC)?

1. One semester
2. Two semesters
3. Three semesters
4. Four semesters
5. More than four semesters

Were you a full-time or part-time student last semester?

1. Full-time
2. Part-time

Including last semester, what is the total number of courses you have enrolled in which were offered over the TIE system?_____

Including last semester, what is the total number of courses you have completed over the TIE system? _____

Did you drop any other courses last semester which were <u>not</u> delivered over the TIE system?

1. Yes
2. No

Regarding the TIE course you dropped last semester, did you attend the orgination site or the remote site?

1. Origination
2. Remote

Was your decision to drop this course influenced by the fact it was delivered over the TIE system?

1. Yes
2. No → (If no) → I appreciate the time you've taken to respond to these question and I hope we can continue to serve you and your needs. Thank you again, _____.

(If yes) → What were the primary TIE-related reasons for dropping the course?

_____

_____

_____

(If none cited suggest:)
Was it the:

TIE system technology ___ _____
Quality of instruction ___ _____
Quality of instructional materials ___ _____
Monitoring of the class ___ _____

Would you take another course delivered over the TIE system?

1. Yes
2. No → (If no) Why not?_____
3. Uncertain

_____

_____

Do you have any other comments regarding the TIE system which you would like me to note?_____

_____

_____

_____

I appreciate the time you've taken to respond to these questions and I hope we can continue to serve you. Thank you again, ____.

APPENDIX D

**Eastern Iowa Community College District**
**Televised Interactive Education (TIE)**
**Instructor TIE Evaluation**

The purpose of this survey is to evaluate the effectiveness of the TIE System. Please answer the following questions based on your teaching experience via the TIE System.

| | | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|
| (1) | 1. The TV monitor in the TIE classroom is adequate for viewing the students. | 5 | 4 | 3 | 2 | 1 |
| (2) | 2. The sound quality on the TIE System is adequate. | 5 | 4 | 3 | 2 | 1 |
| (3) | 3. The TIE System allows me adequate interaction with the students. | 5 | 4 | 3 | 2 | 1 |
| (4) | 4. The TIE System allows me to adequately utilize audio-visual instructional materials. | 5 | 4 | 3 | 2 | 1 |
| (5) | 5. The TIE support personnel were available and able to meet my needs. | 5 | 4 | 3 | 2 | 1 |
| (6) | 6. I was able to adapt my instruction for delivery over the TIE System with relative ease. | 5 | 4 | 3 | 2 | 1 |
| (7) | 7. The remote site students participate in class as actively as origination site students. | 5 | 4 | 3 | 2 | 1 |
| (8) | 8. Orientation of students to the system was adequate. | 5 | 4 | 3 | 2 | 1 |
| (9) | 9. The remote site students are learning as much as the origination site students. | 5 | 4 | 3 | 2 | 1 |
| (10) | 10. Students are learning as much in a TIE course as they would in a regular course. | 5 | 4 | 3 | 2 | 1 |

(11) 11. What are the benefits you have experienced while teaching over the TIE system?

- Instructionally related _____

_____

- Technically related _____

_____

- Other _____

_____

(12) 12. What are the problems you have experienced while teaching on the TIE System?

- Instructionally related_____

_____

- Technically related_____

_____

- Support personnel related_____

_____

- Student related_____

_____

_____

(13) 13. What recommendations would you suggest to enhance instructional delivery utilizing the TIE System?_____

_____

_____

_____

(14) 14. Did you travel to the remote sites to visit with students?

1. Yes
2. No

(15) 15. Would you like additional staff development on the system?

1. Yes
2. No → If yes, what specific areas would be beneficial?_____

_____

_____

(16) 16. What staff development do you recommend as particularly beneficial to new instructors to the TIE System?_____

_____

(17) 17. We welcome your comments._____

_____

_____